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AUTHOR McGee, Jerry; And Others

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ABSTRACT

An evaluation was conducted on the effectiveness of classroom services authorized by 1969 Oregon legislation and provided to trainable mentally retarded (TMR) children between 4 and 21 years of age. During the 1969-70 school year, services were provided to 483 TMR children in 15 different projects administered by the Mental Health Division and 14 agencies contracted by the Division. Change evidenced by TMR students in the areas of self help skills, language development, and motor development was measured by Gunzberg's Progress Assessment Chart, Parsons Language Sample, and Teaching Research Motor Development Scale, respectively. Scales were used to evaluate students (368 were both pre- and posttested) in all 15 projects in October 1969 and again in April 1970. Thirty-five tables and graphs report the t-test values obtained for the TMR population in each of the three measures and in each of the subtests of each measure, t-test values determined by school for each measure and subtest, and t-test values by age level for each measure and subtest. Based upon comparison of pre- and posttest scores, it was concluded that TMR children along the entire age span of 4 to 21 years could and did learn from well organized, structured programs, in spite of the variables unique to each program. (KW)

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Joint Publication by
Mental Health Division and
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Dr. Jerry McGee

Dr. Bud Fredericks

Dr. Victor Baldwin

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FOREWORD

Oregon embarked upon a new endeavor in the care of its trainable mentally retarded children in 1969 with the passage by the Oregon Legislative Assembly of House Bill 1217. The Act authorized the State Mental Health Division to pay up to 60 percent of the costs of private school classes or the "excess" costs of public school classes for these children. This landmark legislation set a unique opportunity to benefit from the years of experience in other states and communities and to ascertain the impact of the new program on the children who were to participate.

"Showing Progress" is a unique report in that it represents a comprehensive and thorough analysis of the impact on each child, each class, and each school. It is an evaluation report that bases its studies on a total population using relevant evaluation instruments and providing measurements of individual performance and performance by groups of participants at both the beginning of a school year and the end of that same school year. The very breadth and scope of the study pre-empt for the report a unique position in the professional literature of both mental retardation and program evaluation.

This report represents the outcome of a joint undertaking of the Mental Health Division and the Oregon State System of Higher Education, Teaching Research Division. The resources of both agencies were committed to the task. The coauthors have collaborated in this study and in the report in such a way as to utilize the skills of each in the most productive outcome. The outstanding prfessional careers of each will be further enhanced by this publication.

Dr. Jerry E. McGee has served as the Director of the Program since its inception in 1969. He has had many years of experience in the special education of the mentally retarded. Under his guidance, the program has required only occasional consultation. Dr. Kenneth D. Gaver, Administrator of the Mental Health Division, carried the major responsibility for the development of the enabling legislation, the guidelines, and the contract documents.

Dr. Harold D. Fredericks is Associate Director of the Teaching Research Division of the Oregon State System of Higher Education. His many years of rich experience in teaching research have endowed him with a unique background of experience in the design and application of research procedures in the education field.

The program and the evaluation study would not have been possible without the full cooperation and patient labors of all the school directors, teachers, assistants, and aides in the local communities. The following agencies and persons deserve special appreciation.

Beaverton Public Schools No. 68
Beaverton
Robert N. Gourley, Superintendent

Clackamas Child Training Center
Oregon City
Mrs. Henrietta Cranston, Director

Coos Intermediate Education District
North Bend
Thomas J. Walker, Superintendent-Director

Corvallis School District No. 509J
Corvallis
Clarence D. Kron, Ed.D.,
Superintendent-Clerk-Director

Emily School for Mentally Retarded Children
Portland
Sister Marcella Ann, Administrator

The Haven School
Salem
Mrs. Maxine Warner, Director

Josephine County Association for Retarded Children
Grants Pass
Kim Jordan, President

Linn-Benton Intermediate Education District
Albany
William H. Dolmyer, Superintendent-Director

Mary Kay School
Ontario
Mrs. Kay Mollahan, Director

Me Re Center
Gresham
Mrs. Barbara A. Place, Director

Opportunity Center of Central Oregon
Redmond
Arthur B. Tassie, Director

Pearl Buck Center
Eugene
Mrs. Elisabeth Waechter, Director

Portland Children's Center, Inc.
Portland
Robert D. Sluva, Executive Director

Shangri-La Corporation
Salem
Robert Talbott, Director

Sweet Home School District No. 55
Sweet Home
William Swegar, Director

The report presents the evaluation procedures and the findings of the first year's experience with 483 children in 48 classes.

"Showing Progress" is but the first of a longitudinal series of evaluation studies on Oregon's classroom program for the trainable retarded.

Kenneth D. Gaver, M.D.
Administrator
Mental Health Division

Roy E. Lieuallen, Ed.D., L.H.D.
Chancellor
Oregon State System of Higher Education

OREGON MENTAL HEALTH DIVISION

BACKGROUND INFORMATION

The 1969 Oregon Legislature passed a bill (Enrolled H.B. 1217 – ORS 430.760 – 430.820) which, among other things, authorized the Mental Health Division to contract public or private agencies to provide classroom services to the trainable mentally retarded in Oregon between the ages of 4 and 21.

Fourteen agencies were contracted to provide these services in 48 classes serving 483 children during the 1969-70 school year. A fifteenth project, Clackamas Child Training Center, was contracted directly by the Mental Health Division under previous authorizing legislation.

An evaluation "plan" designed to evaluate program effectiveness was developed by the staff of the Community Mental Retardation Section of the Mental Health Division.

Implementation of the plan in early fall of 1969 was necessary to prevent loss of data. It is important to note that the plan was operational within the first month after the various projects were funded.

This report is a description of evaluation procedures and the results based upon data obtained in the first school year of operation under ORS 430.760 to 430.820.

*This is an abridged version of the original 53-page report. The entire original report is on file with the Community Mental Retardation Section of the Mental Health Division.

PROCEDURE

Three major aspects of the program for the trainable mentally retarded were selected for evaluation as to possible change. They were self-help skills, language development, and motor development. These three areas were chosen because objective measurements could be taken as opposed to an area such as social skills or economic efficiency where subjectiveness compromises the results.

Selection of Scales

Three scales were selected to measure change in these areas: Gunzberg's Progress Assessment Chart for self-help skills; Parsons Language Sample for language and, Teaching Research Motor Development Scale in the area of motor development.

These three scales were selected from a number of various scales available for the following reasons:

1. They were all standardized on trainable mentally retarded populations.
2. Two of the scales, i.e., the Progress Assessment Chart and Parsons Language Sample have had wide acceptance in the literature as being quite reliable and having validity. The third, Teaching Research Motor Development Scale, is not widely known outside of Oregon because of its recent development but it was considered the most comprehensive, reliable and valid of the various scales available and it was the only scale reviewed which was standardized on a TMR population or was not an adaptation of another scale.
3. All three scales were designed to be administered by classroom teachers.

Design: A pre-test – post-test research design was utilized. The pre-testing occurred in all 15 projects during the same week in October, 1969. The post-testing was accomplished throughout the various projects the same week in April, 1970.

Statistical Treatment

As a descriptive statistic, a correlated t-test was utilized. This is an especially appropriate statistic since each child acts as his own control in that he has a pre-test and post-test for each of the three measures. The t-test is a potent statistic when used as a descriptive statistic in this manner. T-test values were obtained for the entire 1217 population in each of the three measures and in each of the sub-tests for each of the three measures. In addition, t-test values were determined by school for each of the measures and for each of the sub-tests of each measure. Finally, t-test values were obtained for each of the measures and their sub-tests for various age bands. Significance values are specified by the utilization of asterisks, one asterisk signifying significant differences at the .05 level, two asterisks signifying significant differences at the .01 level, and three asterisks signifying significant differences at the .001 level.

Coordination

A third party research team was contacted to coordinate the testing, provide inservice training on administering, scoring and reporting test results; to monitor the actual testing and to do the necessary statistical treatment of the test results. Teaching Research, a Division of the State System of Higher Education, State of Oregon served in this coordinating role. Dr. Harold Fredericks, Associate Director, was selected as the staff person from Teaching Research to oversee all aspects of the evaluation procedure.

Standardization

To insure that standard procedures would be followed throughout the 15 projects, in regard to administering, scoring, and reporting the tests, a day-long evaluation seminar was held by the Mental Health Division the week the pre-testing was to occur. Persons directly responsible for the pre- and post-testing were given a structured program on the three scales to be used. This program included test rationale, test administration, test scoring, and reporting of test results. An integral part of this seminar consisted of actual observation and practice in

administering these scales to trainable mentally retarded students under the supervision of trained examiners. This seminar was held at Fairview Hospital and Training Center, using their population. None of the students later to be tested as part of the community TMR population were used in this practicum setting. Forty-three individuals took part in this inservice standardization training seminar and practicum.

Members of the Teaching Research Staff and the Community Mental Retardation Section staff were available for monitoring during the actual pre- and post-testing at the various projects.

Description of the Population

The students evaluated in this program met the following criteria:

1. Between the ages of 4 and 21 (as of November 15, 1969).
2. Incapable of meaningful achievement in traditional academic subjects.
3. Capable of profiting to a meaningful degree from instruction in self-care, social skills and simple job and vocational skills.
4. Did not include students eligible for Educable Mentally Retarded classes as defined by Oregon Statutes.

It is important to note that in Oregon, the Mental Health Division eliminated many of the artificial barriers which restrict enrollment in other states, for example:

1. In Oregon the starting age is 4-years of age, whereas the majority of the states do not enter TMR children in classroom activities until age 6.
2. A pupil did not have to be toilet trained to enter the program. In every other state this is an entrance criterion. This sensitive area is considered an appropriate aspect of training in Oregon's programs and was not used as a factor to exclude.
3. A pupil did not have to be ambulatory; he could be in a wheel chair, use a walker, etc., and still be included.

The N at the time of the pre-testing was 378. The data from one project were reported too late to be included with the total. That project had an N of only 5. That population was run later.

Their change is not reflected in any of the graphs, etc. The N at the end of the school year was 483 for an increase of 105. Unfortunately for the purposes of this report, this expansion occurred after the pre-testing was accomplished, therefore a pre-test was not available for this number. Consequently the N for which both pre- and post-testing was accomplished equaled 368.

The breakdown by age group was as follows:

		F	M
0 - 5 =	26	10	16
6 - 9 =	128	43	85
10 - 13 =	105	52	53
14 - 18 =	99	47	52
19 - 21 =	10	5	5

Description of the 15 projects

The variations between the various projects funded are remarkable. Some of the major variables are listed below:

1. *Administrative structure:* The projects ranged from private, non-profit organizations administered, by-and-large, by a parent board through an educational director, to local public school districts, administered by the building principal and a director of special education, to projects administered by Intermediate Education Districts through a Director of Special Education. The breakdown by projects was nine private, non-profit organizations, three local school districts, two I.E.D.'s and one project directly administered by the Mental Health Division.
2. *Length of time in operation:* The projects ranged in length of time in operation from no previous experience to over 25 years of previous operation. The average length in operation is 5.3 years; however, seven of the projects have been in operation less than two years.
3. *Qualifications of staff – experience and training:* Again the range was wide in years of teaching experience – from zero years to over 20 years, with the mean of 4.4 years.

   The range of formal preparation was from high school graduation to Master's degree plus in Special Education. The mean years of college or university work was 4.5 years.
4. *Demography:* Three of the projects were located in large metropolitan areas (population over 400,000); six projects were located in urban areas (population 50,000 – 150,000); and six were located in areas with less than 50,000 population.
5. *Number of classes per project:* Ten of the projects had two or more classes which permitted differential teaching and 5 of the projects had single, self-contained classrooms.

PRESENTATION OF DATA

Table I contains the mean pre- and post-test scores for all three scales: The Parsons Language Sample, which purportedly measures language skills, the Teaching Research Motor Development Scale, which purportedly measures motor skills, and the Gunzberg Progress Assessment Chart which purportedly measures self-help skills. Table I reflects the averages achieved by all trainable retarded children within the classrooms across the State of Oregon. An examination of the column labeled t indicates that there was significant difference at the .001 level for the total scores of the Parsons, the Motor Development and Language tests. All the sub-tests were significant at the .001 level or .01 level with the exception of sub-test 1 of the Parsons Language Sample. This difference for this particular sub-test is non-significant.

GUNZBERG SUBTESTS

BY TOTAL GROUP (DF=733)

TABLE I

	Pre	Post	t
Gunsberg Total	49.4266	57.4239	-7.3597**
Self help	24.6929	27.4538	-5.5434**
Commun.	15.1467	18.6522	-7.3837**
Socialization	9.6495	11.3668	-5.9503**

		Pre	Post	t	
Parsons					
	1.	14.7527	15.0652	-0.5477***	N = 368
	2.	14.9810	15.3886	-3.8589***	
	3.	32.2310	35.0897	-6.8910***	
	4.	25.2310	28.3533	-6.0114***	
	5.	26.0561	30.2853	-8.2408***	
TOTAL		44.7364	51.8342	-14.5398	
MOTOR DEVELOPMENT					
	1	9.0761	12.6440	-9.3586***	
	2.	3.0163	3.6603	-5.6571***	
	3.	6.9783	8.8777	-9.4719***	
	4.	1.4674	2.0734	-7.8742***	
	5.	5.6658	7.1033	-7.0515***	
	6.	11.2364	12.2858	-5.1552***	
	7.	6.4158	7.1793	-5.2377***	
	8.	4.5598	5.4429	-6.4147***	
	9.	9.5897	11.5109	-7.9112***	
	10.	8.6223	10.6984	-10.6775***	
	11.	5.6250	8.7446	-10.3100***	
	12.	11.0598	12.2310	-4.8891***	
TOTAL		82.9484	102.5707	-16.6175	

Tables II through X show the results by school of the Parsons Language Sample.

TABLE II
PARSONS LANGUAGE SAMPLE TOTAL

Table II shows the total mean scores achieved on the Parsons Language Sample by school. An examination of Table II indicates that all schools achieved significant differences in the total scores of the tests except schools No. 4 and No. 6. All significances were at least at the .01 level with the exception of school No. 10 which was significant at the .05 level.

*** = .001
** = .01
* = .05

School	N	Pre	Post	t
1	31	36.1935	44.4194	-6.1543***
2	55	39.8182	46.5091	-6.3808***
3	30	52.5000	58.1667	-5.3374***
4	4	15.7500	20.2500	-1.7765
5	26	41.8846	67.4231	-17.9315***
6	25	32.7200	34.6800	-0.6716
7	36	51.6944	54.1389	-4.0330***
8	6	19.3333	26.6667	-4.6904**
9	13	43.1538	52.9231	-4.2193***
10	20	42.5500	47.7500	-2.4752*
11	51	49.7843	54.8431	-5.9638***
12	14	62.7143	68.0714	-4.2351***
13	44	47.5455	54.0909	-5.0656***
14	14	54.2143	62.2143	-4.5047***
15	5	Results not included		

Table III shows the same results as Table II, that is, mean scores achieved, school by school; only it is in graphic form for easy comparisons.

TABLE III
PARSONS LANGUAGE SAMPLE TOTAL MEAN GAINS

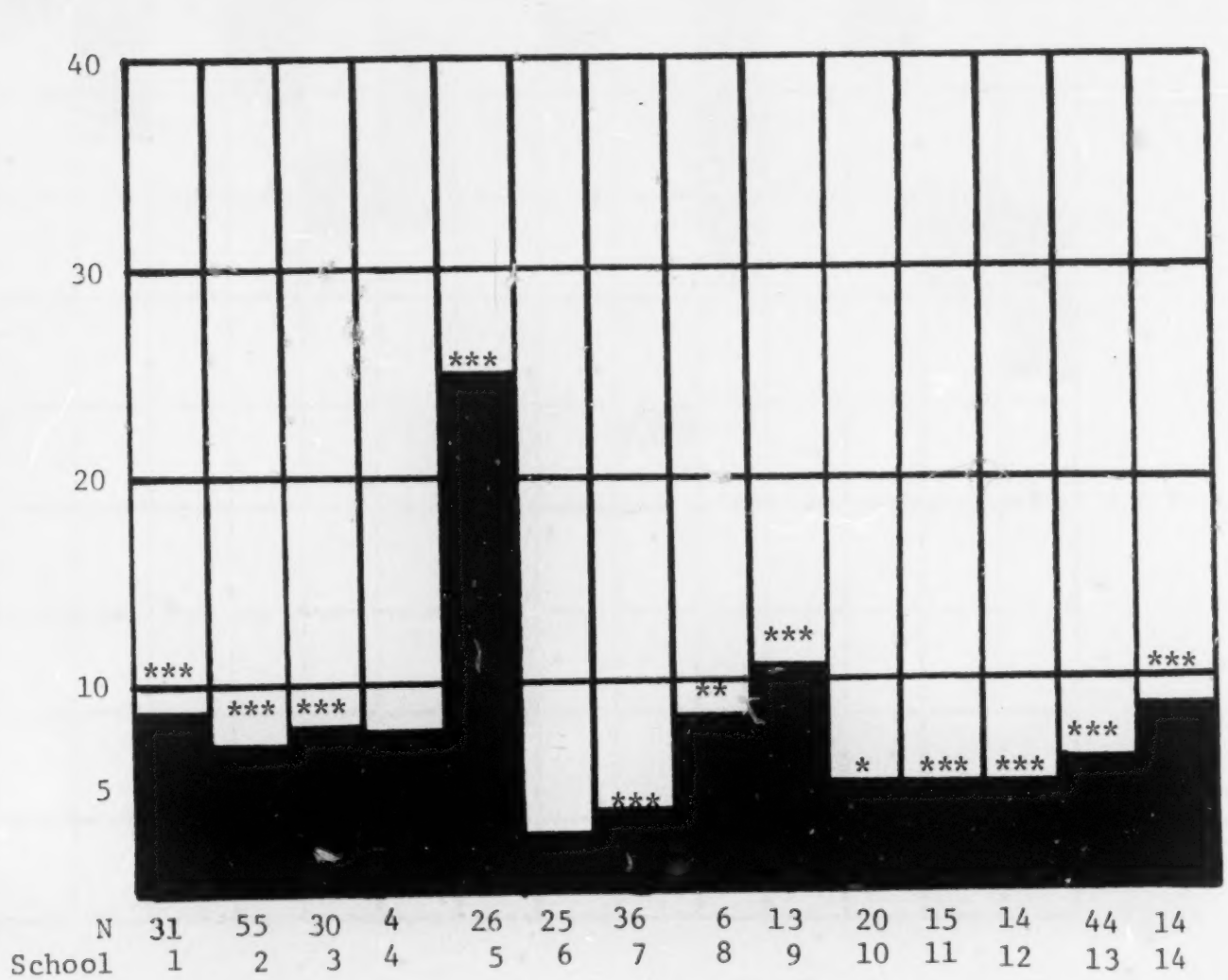


Table IV indicates the mean gain achieved on the Parsons Language Sample, school by school, and the relative beginning and ending levels at which the children in the various schools were functioning.

TABLE IV

PARSONS LANGUAGE SAMPLE (TOTAL) PRE-POST

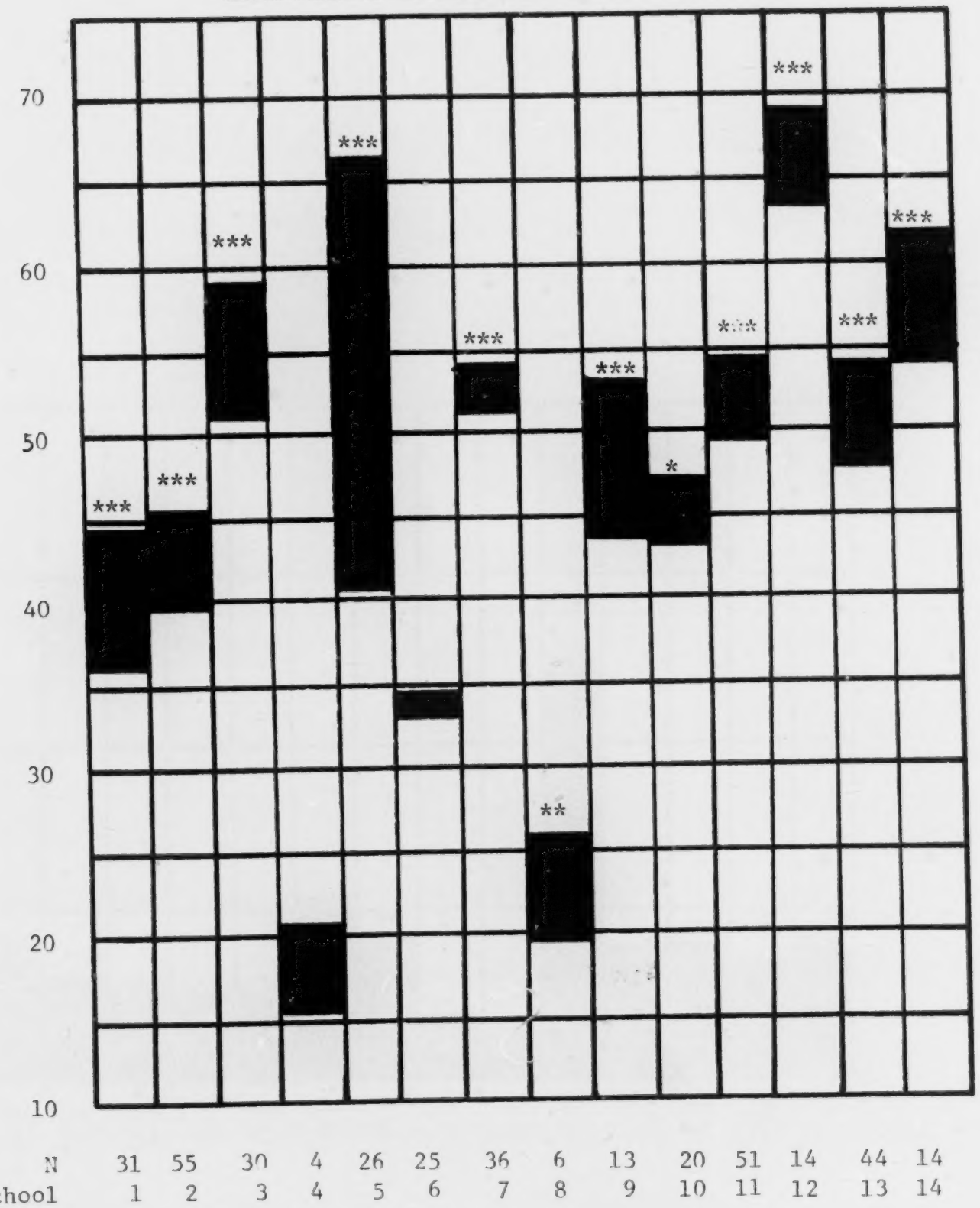


Table V summarizes the results by sub-test on the Parsons Language Sample. Inspection will disclose a number of non-significance scores in the five sub-tests in the various schools, including even those who made the most gains. For instance, School No. 5 that made by far the greatest language gain shows non-significant results in Parsons sub-test No. 2.

Please note that in some instances there are losses. These losses are denoted by the minus sign.

It is interesting to note that the school that made the most gain on the language score made these gains in sub-tests Nos. 3, 4, and 5.

TABLE V
PARSONS SUBTESTS BY SCHOOL

* = .05
** = .01
*** = .001

School	N	1	2	3	4	5
1	59	12.9677-14.5161 -2.5773	13.8710-15.3226 -2.2088*	28.2258-30.8337 -2.5106*	20.3226-21.3226 -1.1576	18.3448-25.0323 -4.0383***
2	107	13.5818-14.5818 -4.2298***	14.7818-15.4000 -3.2572**	28.6000-33.7818 -3.4001***	22.3091-30.8182 -7.8387***	24.7818-31.7273 -4.7142***
3	57	15.5333-15.6667 -1.6820	15.0000-15.8333 -3.0685**	37.1333-38.1000 -1.2790	26.8000-29.2000 -1.0847	31.6000-32.3667 -0.5253
4	5	11.2500-12.7500 -1.1339	12.7500-11.7500 (-) 2.4495*	16.7500-13.0000 (-) .8906	8.7500-11.5000 -2.4804	12.0000-13.5000 -0.8115
5	49	14.8077-16.0000 -2.7745**	15.4231-16.0000 -1.3298	31.5385-39.3077 -3.4849**	22.8462-29.9231 -6.9506***	20.5385-32.7692 -5.4609***
6	47	20.8800-15.3200 (-) .6667	14.2400-15.4400 -1.6483	27.0800-26.8800 (-) .1065	18.7200-20.0800 -.7576	17.2400-22.5600 -2.5046*
7	69	15.2500-15.4722 -1.0338	15.0833-15.0833 0	37.0556-36.9722 (-) .2811	31.6389-32.4722 -2.7827**	35.0778-37.8056 -2.8532**
8	9	12.3333-14.0000 -2.5000*	14.3333-15.0000 -3.1623*	14.5000-16.6667 -1.9044	14.3333-18.1667 -4.3147**	9.1667-13.1667 -1.8926
9	23	13.6154-14.5385 -1.9509	15.1538-15.5385 -1.5945	27.4615-31.6923 -2.0883*	22.7692-30.3077 -3.5761**	25.0000-30.8462 -2.9238**
10	37	13.9500-14.2500 -0.6980	15.4500-15.2000 (-) .8649	30.3500-33.5500 -2.1848	22.4000-27.9500 -2.4853*	23.7000-29.4000 -1.8173
11	99	14.6078-15.1569 -2.2153*	15.4510-15.392 (-) .4539	37.4118-39.4510 -5.0737**	24.9216-26.7157 -1.4873	27.0784-28.1765 -1.0109
12	25	15.7143-15.5714 (-) 1.0000	15.8571-16.1429 -1.7489	38.9286-40.3571 -2.0156	32.7143-35.0714 -2.4162*	39.0714-41.5714 -2.8555**
13	85	13.8409-14.9773 -3.0703**	15.1591-14.9545 .6503	32.2955-36.2045 -2.3862*	32.2955-31.3636 (-) .3231	28.2500-29.9545 -1.2624
14	25	15.7857-15.9286 -1.0000	15.3571-16.0000 -1.0578	37.0000-40.5714 -3.3948**	32.3571-33.7857 -0.6164	30.5714-32.1429 -0.3917

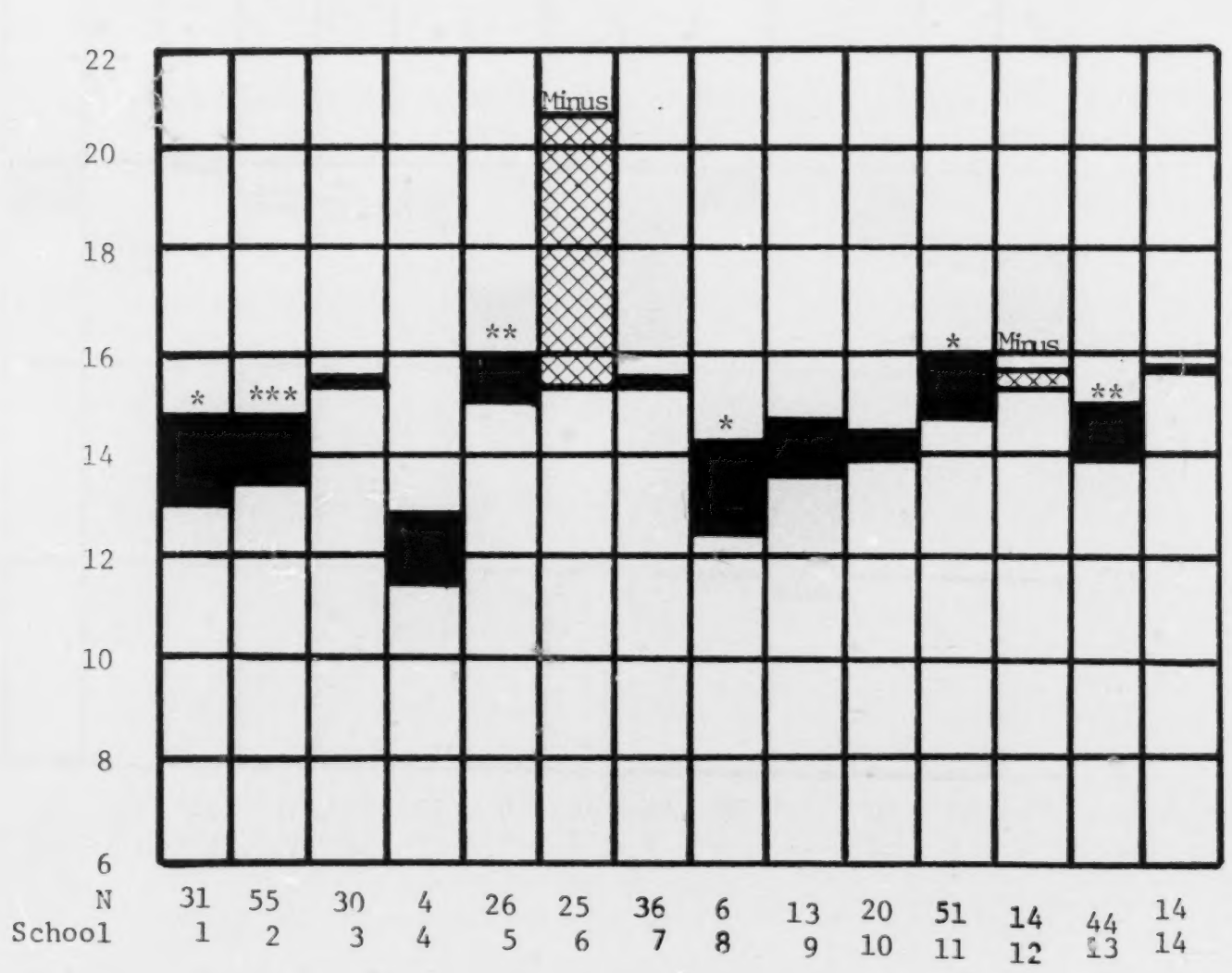
Tables VI – X illustrate the results of the Parsons five subtests in graphic form. These tables indicate the mean gain for each sub-test, school by school, as well as graphically indicating the relative operating levels at which the children in each school perform. Where there is a loss, it is noted by the word "minus."

Above each graph, sample items from each subtest are included to make the presentation more meaningful.

Sample Items Subtest 1, *Echoic Gestures:*

1. The examiner claps hands and says to the child, "Do this."
6. The examiner slaps left knee with left hand and says "Do this."

TABLE VI
PARSONS SUB-TEST NO. 1 BY SCHOOL
Mean Gain and Relative Operating Levels



Parsons sub-test No. 2. Sample items sub-test No. 2:

Comprehension

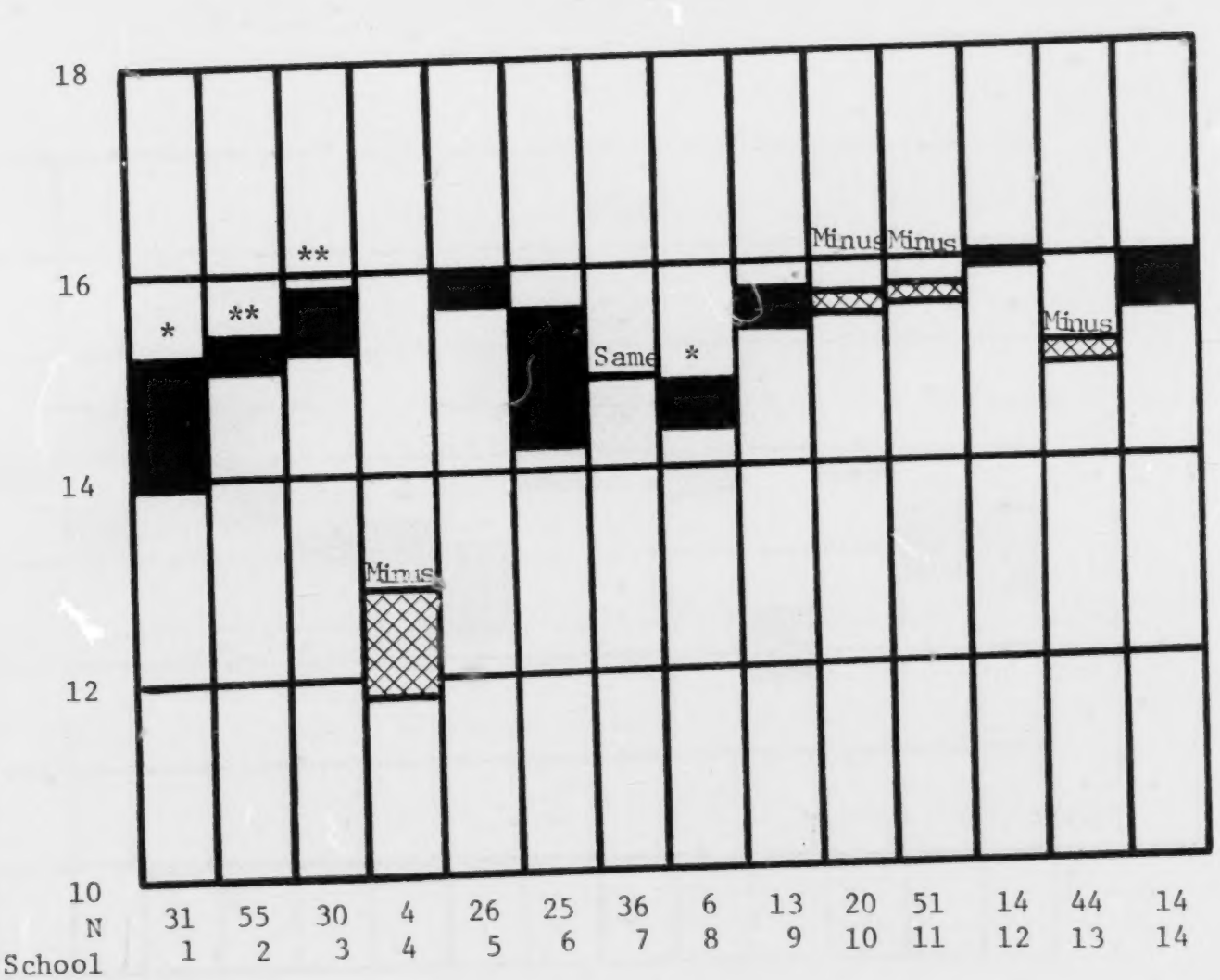
3. (Vocal only). The examiner says: "Open the door." Once the door is open the examiner says: "Now, close the door."
4. (Gesture only). The examiner points to the child and then to the child's chair, saying nothing.

TABLE VII

PARSONS SUB-TEST NO. 2 BY SCHOOL

Pre-Post

Mean gain and relative operating levels



Parsons sub-test No. 3. Sample items sub-test No. 3.

Examiner presents each object or picture, one at a time: "What is it?" or "What do you call it?"

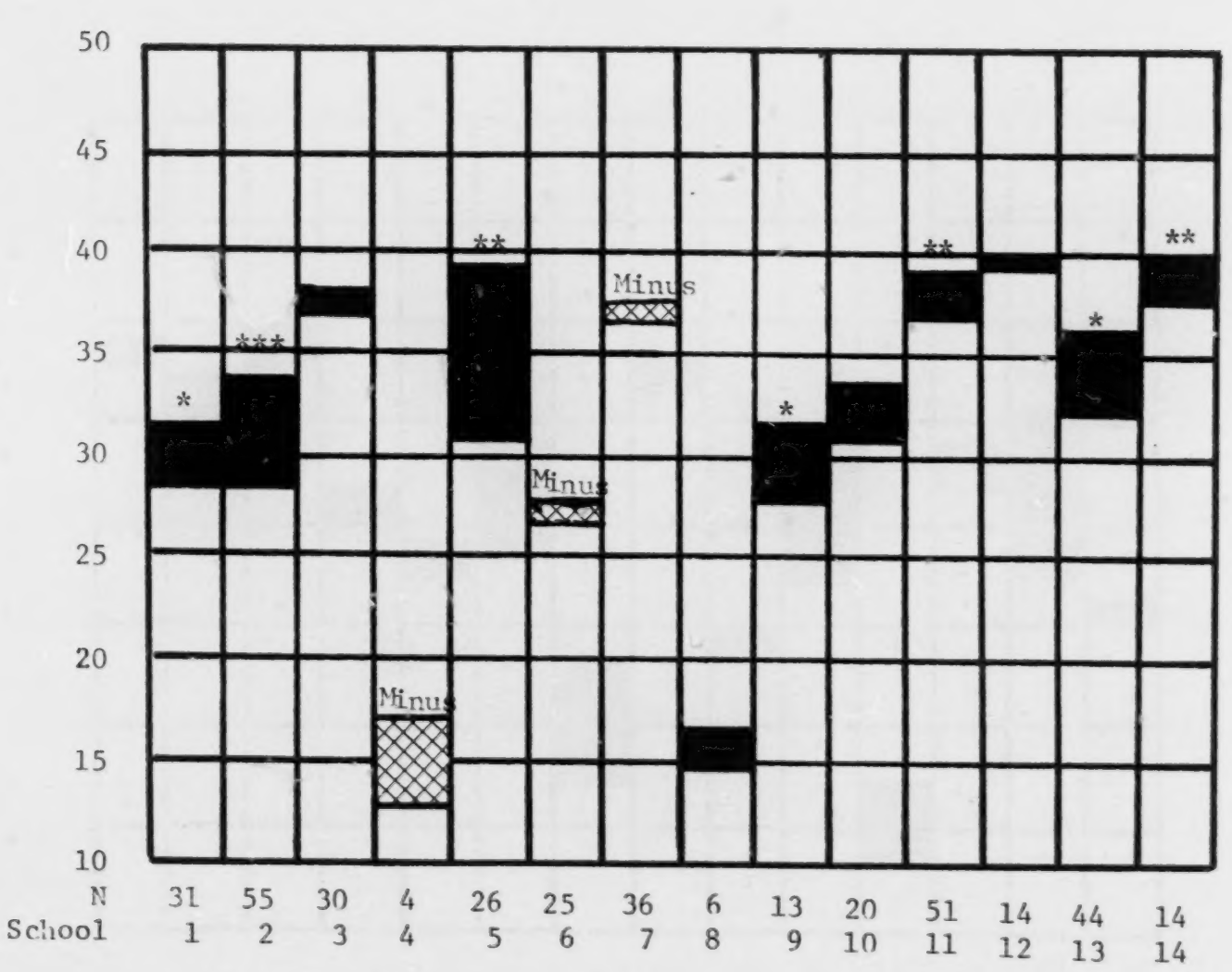
1. Ball
2. Hammer
3. Airplane
4. Drum

TABLE VIII

PARSONS SUB-TEST NO. 3 BY SCHOOL

Pre-Post

Mean gain and relative operating levels



Parsons sub-test No. 4. Sample items:

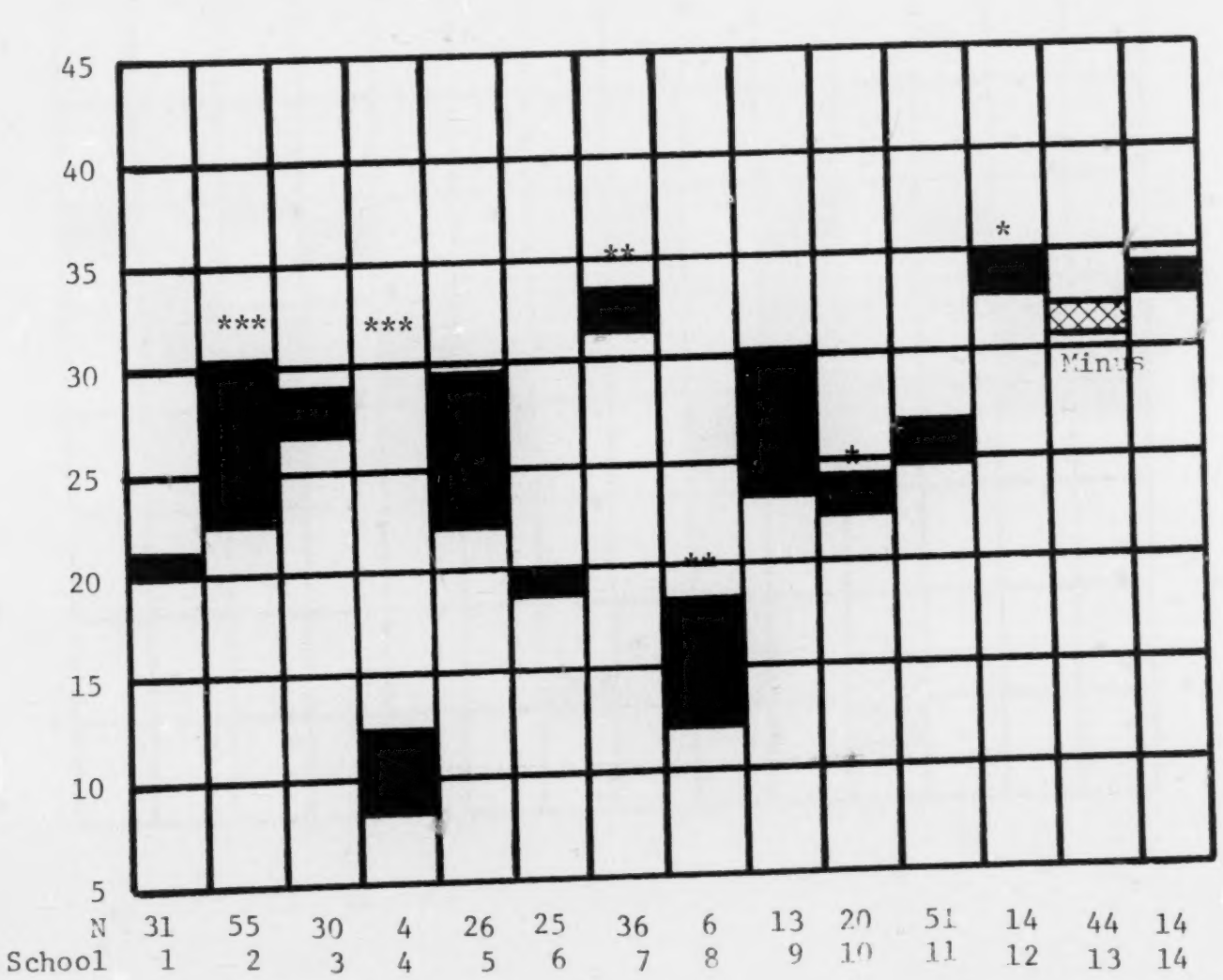
1. Say "Ball."
5. Say "Give me one."
10. Say "In the summer time little children like to go wading and swimming."

TABLE IX

PARSONS SUB-TEST NO. 4 BY SCHOOL

Pre--Post

Mean gain and relative operating levels



Parsons Sub-test No. 5.

Sample items sub-test No. 5: *Interverbal.*

1. What do we do when we are hungry?
6. What do you do with books?
12. A lemon is sour? sugar is . . .
18. Why do we have houses?

TABLE X

PARSONS SUB-TEST NO. 5 BY SCHOOL

Pre-Post

Mean gain and relative operating levels

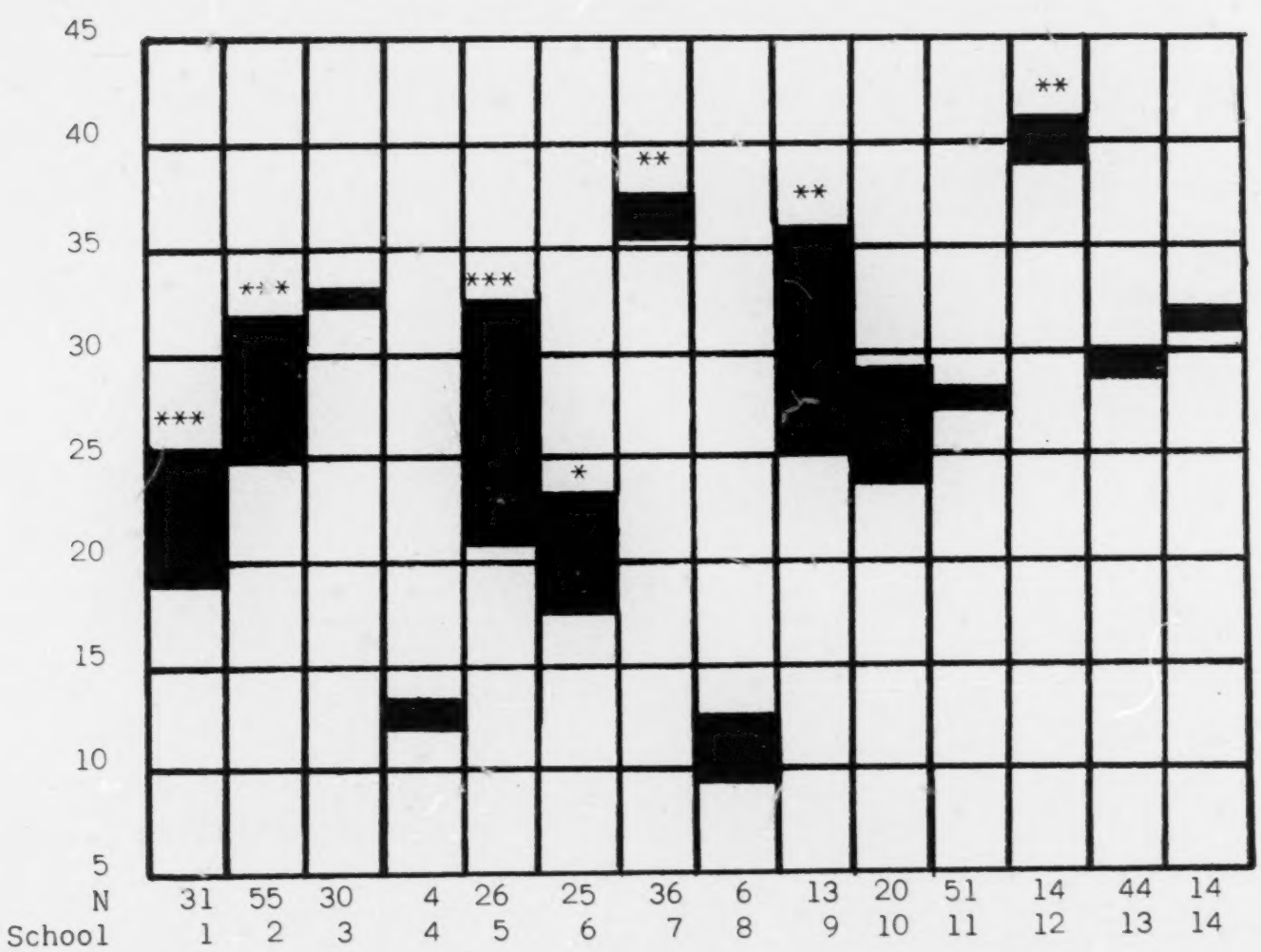


TABLE XI
GUNZBERG PROGRESS ASSESSMENT CHART TOTAL

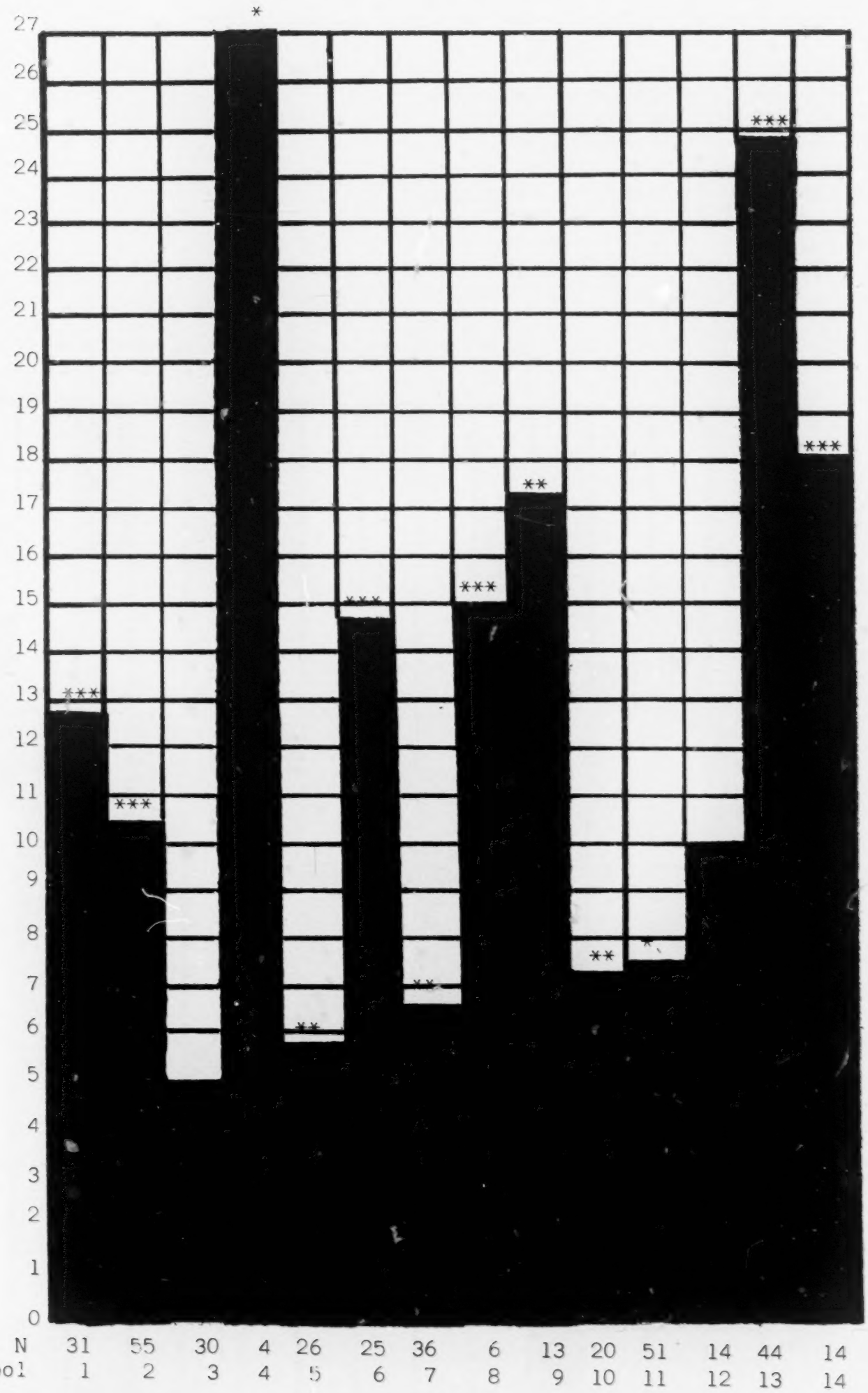
Table XI summarizes the results by sub-tests on the Gunzberg Progress Assessment Chart. An examination of the first column of Table XI indicates that all schools showed significant differences in the total Gunzberg scores with the exception of schools No. 3 and No. 12. Schools No. 4 and No. 11 were significant at the .05 level and all others were significant at levels of .01 and better.

TABLE XI
GUNZBERG

School	N	Total	Self-help	Communication	Socialization
1	59	46.5484-59.1290 -7.9184***	23.2903-29.8065 -8.4142***	14.0323-17.6774 -4.7613***	9.2903-11.6452 -3.5680***
2	107	58.5818 69.2182 -8.5946***	28.6000-32.0364 -5.9654***	16.9636-22.3818 -8.4979***	13.0182-14.9818 -5.0791***
3	57	59.2333-63.7333 -1.6260	31.4000-30.5000 Minus .7124	16.1667-21.8000 -4.5409***	11.6667-12.8000 -1.2260
4	5	16.2500-43.0000 -3.5726*	8.5000-19.0000 -12.1244***	3.5000-10.7500 -2.6078*	4.2500-10.7500 -1.9673
5	49	50.4862-56.5000 -2.7845**	26.4615-28.4615 -1.5501	12.9231-16.7692 -4.7432***	11.0769-11.3077 -0.3825
6	47	40.4000-55.2800 -8.3692***	21.6400-26.8800 -4.8633***	12.2800-18.2020 -5.1083***	6.5600-10.5600 -6.4606***
7	69	48.4167-56.0278 -3.1145**	22.4722-25.2222 -2.8194**	18.2222-18.9167 -0.5158	8.2778-11.3333 -2.4014*
8	9	34.6667-49.6667 -7.2618***	18.8333-26.1667 -5.9656***	8.1667-13.1667 -5.0000***	7.667 - 10.3333 -2.9019*
9	23	42.3077-59.7692 -2.6827**	20.4615-27.6154 -1.9416	10.6154-20.9231 -3.0171**	11.0769-11.2308 -0.1170
10	37	31.2500-38.3500 5.1866***	15.6000-24.0000 4.6818***	9.8550-12.7000 3.9540***	5.8000-11.6500 -3.9170***
11	99	52.6471-60.0392 2.3394*	25.8431-29.4706 3.0254**	15.7451-19.1373 2.0968**	11.0588-11.8431 -.8926
12	25	70.4286-80.4286 -2.0251	31.3571-35.7143 -1.8522	24.7143-28.9286 -2.1959*	13.6429-15.0714 -1.2154
13	55	35.0000-59.8636 -5.159***	18.0455-29.3064 -5.7137***	11.7727-20.0909 -5.0235***	5.1818-10.3409 -4.7823***
14	25	48.6429-66.7857 -9.2135***	26.5000-31.3571 08.0833***	14.9286-24.7857 -6.7866***	7.2143-10.5714 -6.2086***

TABLE XII
MEAN GAINS – GUNZBERG (TOTAL)

Table XII shows the same data as Table XI; that is, mean scores achieved on the Gunzberg Progress Assessment Chart, school by school, only it is presented in graphic form for easy comparisons.


27
26
25
24
23
22
21
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9
8
7
6
5
4
3
2
1
0
N 31 55 30 4 26 25 36 6 13 20 51 14 44 14
School 1 2 3 4 5 6 7 8 9 10 11 12 13 14

Table XIII indicates the mean gain achieved on the Gunzberg Progress Assessment Chart and also the relative beginning and ending levels at which the children in the various schools were functioning.

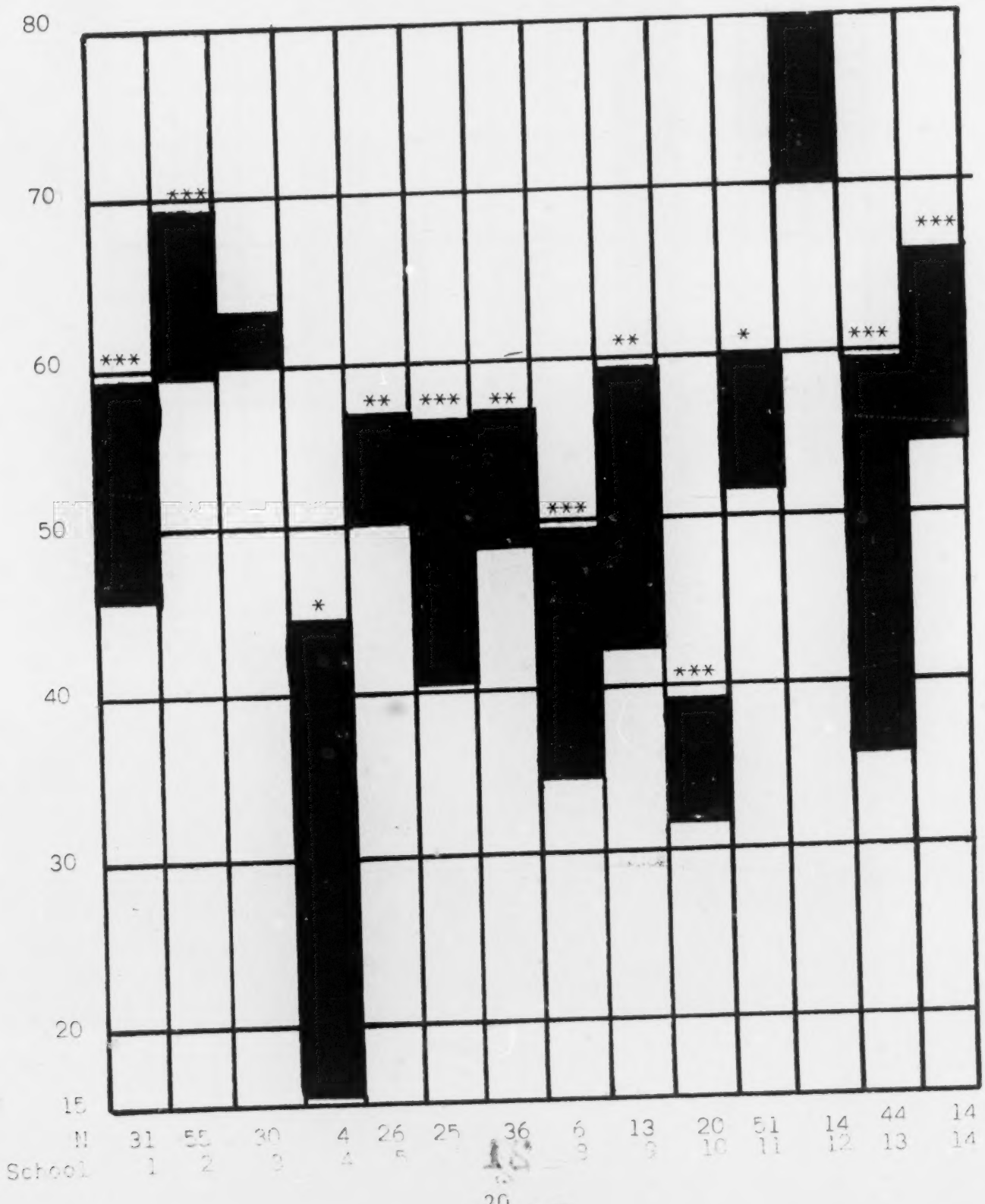
An examination of Table XIII seems to indicate that in those schools where the children were functioning at the lower levels, the gains were the greatest. This appears true except in the case of school No. 10. This phenomenon holds true in most areas of the scale, i.e., self-help skills area, communication skill area, and most prevalent in the socialization area.

TABLE XIII

GUNZBERG (TOTAL)

Pre-Post

Mear Gain and Relative Operating Level



Tables XIV, XV, and XVI graphically show the mean gain on the Gunzberg by subtests. They also indicate the relative functioning level of the children in each program.

Examples of the items are included above each subtest table to make the data more meaningful.

It is interesting to note that four schools achieved nonsignificant results; i.e., Numbers 3, 5, 9, and 12. At first glance this may appear puzzling. However, it should be noted that this is the area in which concerted effort has been applied over the longest period of time, both at home and at school. Thus, the gain recorded in any one year would appear to be less significant. It may be more important in the area of self-help skills to note that even though the items in this subtest have received the most attention, over the life span of the child each program continues to show growth even though not statistically significant.

Examples of items from the Gunzberg (Form II) Self-help skills subtest:

(a) 1. Uses spoon when eating without requiring help.
8. Eats with knife and fork; requires no help.

(b) 4. Walks up stairs, one foot per step, without supporting himself.

(c) 1. "Toilet-trained" with infrequent accidents.
5. Washes his hands with soap in an acceptable way.

(d) 3. Removes and puts on simple articles of clothing.
9. Ties bows and/or shoelaces.

TABLE XIV
GUNZBERG – PRE-TEST – SELF HELP

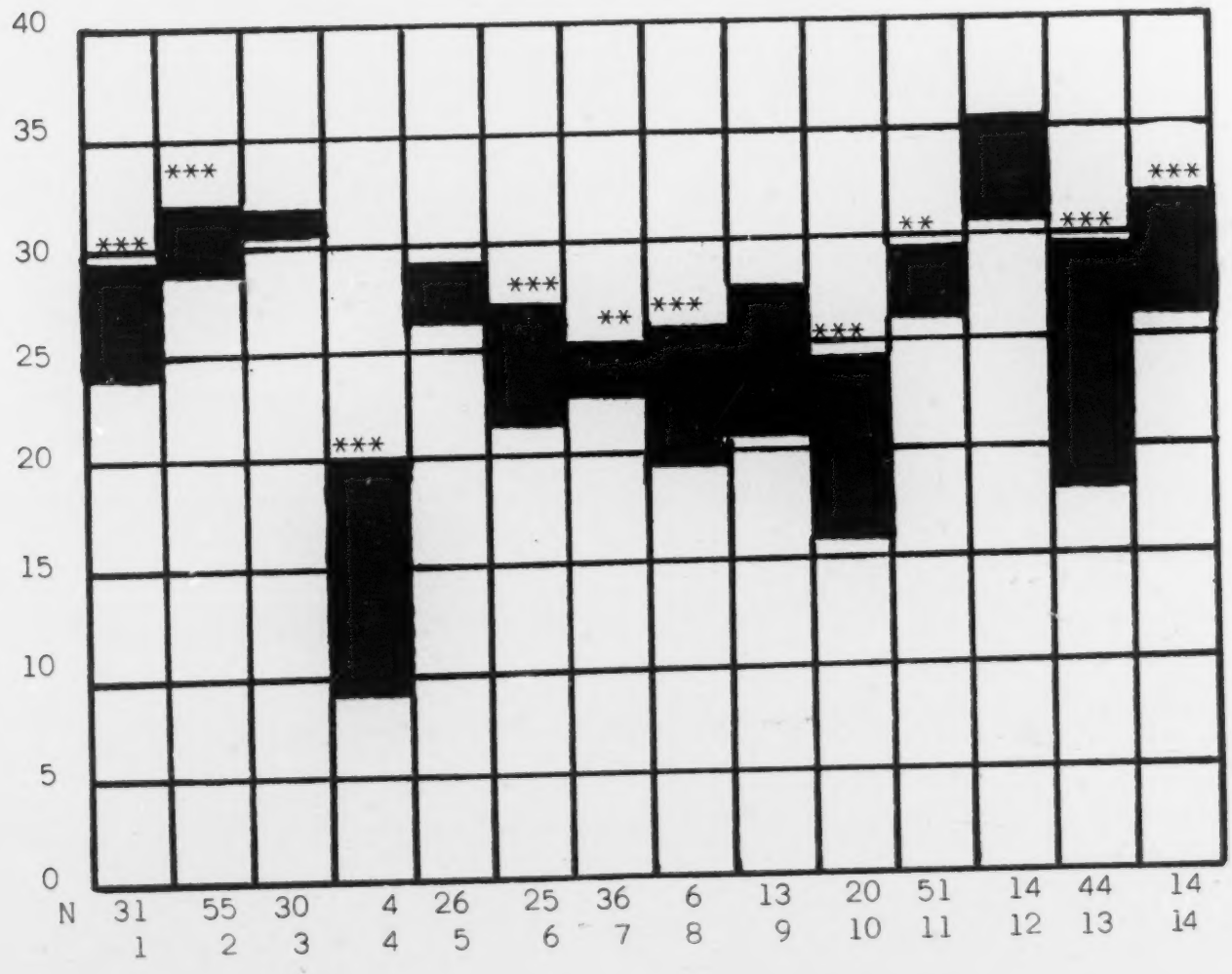


Table XV shows the mean gain and relative functioning level, school by school, on the Gunzberg subtest having to do with communication skills. All schools achieved significant results except school No. 7.

It is incongruent that two schools that received non-significant results on the Parsons Language Sample should receive significant results on the communication portion of the Gunzberg – schools 4 and 6 – see Tables II, III and IV. The two scales are obviously measuring different total aspects of communication. An item analysis may shed light on this phenonomen.

Examples of items from the communication subtest of the Gunzberg (Form II).

2. Answers telephone and gives sensible answers.
7. Gives change out of a quarter.
13. Associates times on clock with various actions and events.
19. Can write his signature in an acceptable way.
26. Reads and interprets simple printed matter, e.g., radio and TV guides, menus, etc.

TABLE XV

GUNZBERG - COMMUNICATION PRE-POST

MEAN GAIN AND RELATIVE OPERATING LEVELS

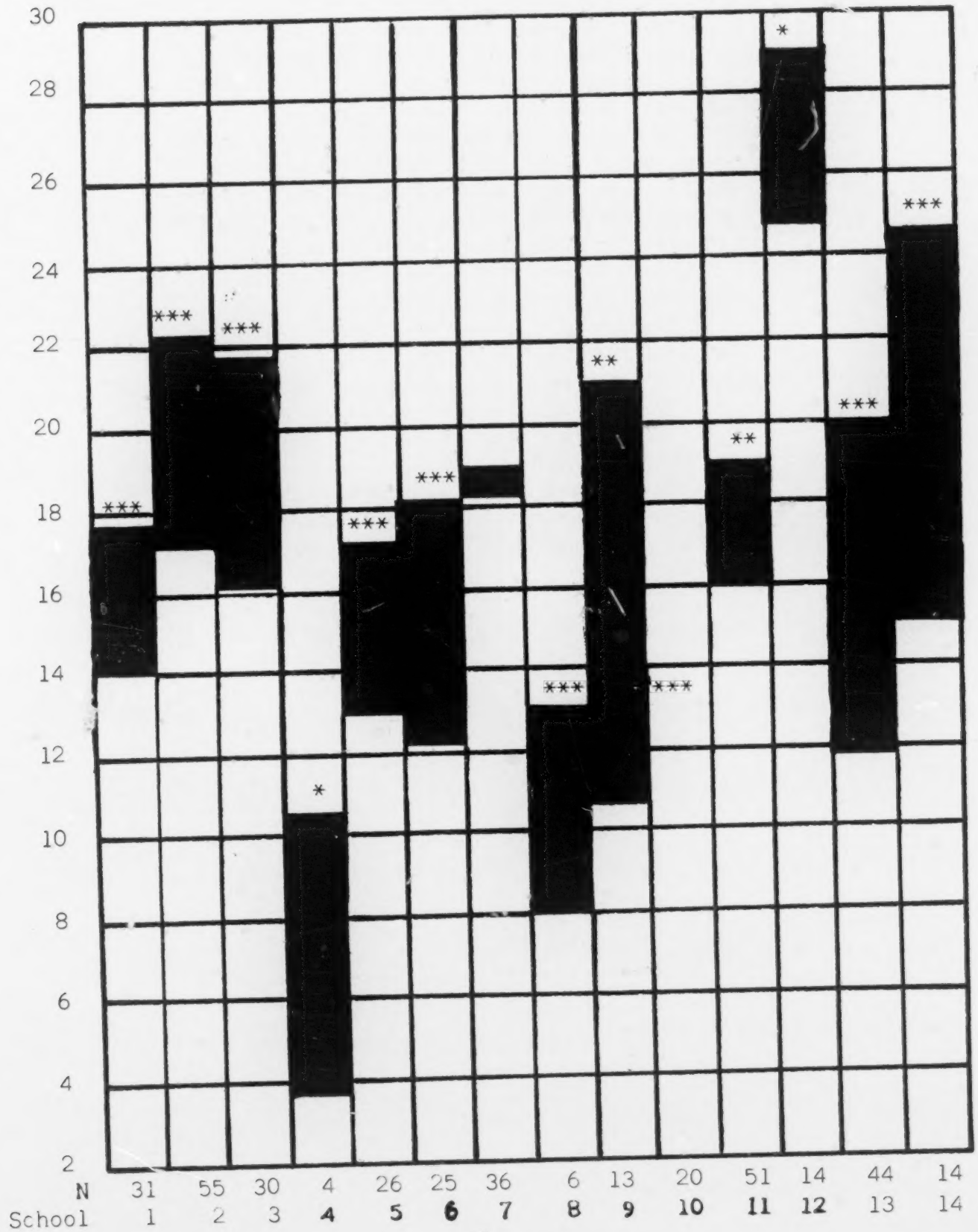


Table XVI shows the mean gain and relative functioning level, school by school, for the subtest socialization, from the Gunzberg. In the area of socialization the following schools achieved nonsignificant results: Nos. 3, 4, 5, 9, 11 and 12. There is need for careful analysis of the various subtest items to try to determine the importance of this data with the high frequency of non-significant results.

Examples of items from the subtest on socialization skills from the Gunzberg. (Form II).

1. Makes minor purchases in self-service shop.
9. Is polite (good morning, goodbye); knocks at doors, apologizes, etc.
13. Carries out routine task, e.g., washing dishes, setting table, sweeping, etc.
19. Knows about postage rates for ordinary letters.
25. Makes inquiries from policeman or passerby and can follow directions.

TABLE XVI
GUNZBERG - SOCIALIZATION PRE-POST

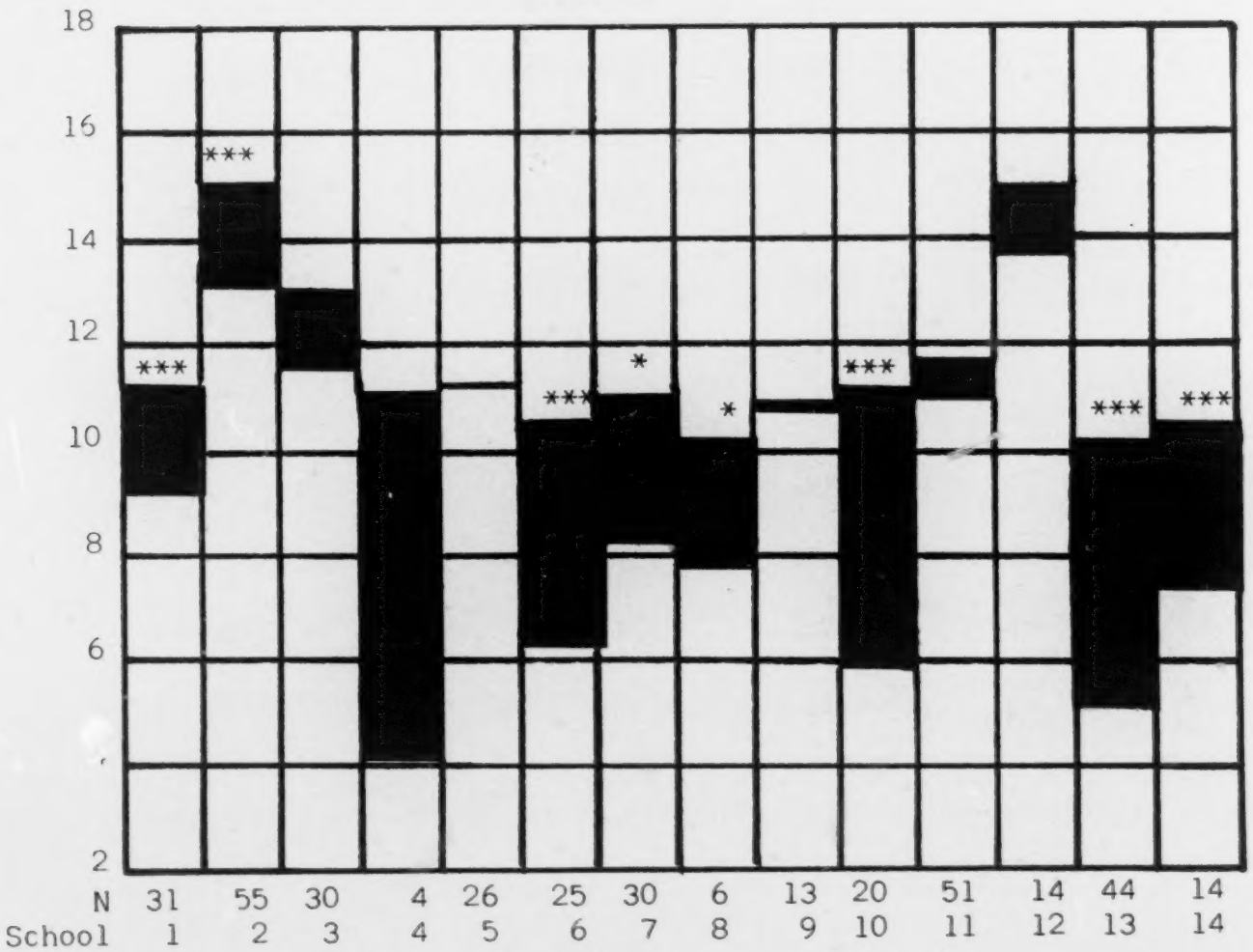


Table XVII shows the results of Teaching Research Motor Development Scale. An examination of this table indicates that in three cases schools achieved non-significance in the main gains for the total scores of the test; i.e., schools No. 4, 12 and 14. School No. 5 achieved significance at the .05 level and all other schools achieved significance at the .01 level and above.

TABLE XVII
MOTOR DEVELOPMENT - TOTAL

School	Df	Pre	Post	t
1	59	78.2258	93.7742	-5.3552***
2	107	72.6727	93.4545	-10.8097***
3	57	68.4333	85.7333	-6.7491***
4	5	25.5000	34.5000	-1.1571
5	49	94.1538	104.2308	-2.1243*
6	47	52.000	62.2400	-2.8162**
7	69	117.5556	130.9167	-2.8639**
8	9	40.6667	54.6667	-2.8498**
9	23	86.9231	108.3077	-3.8191***
10	37	73.2500	87.2000	-3.0292**
11	99	82.5882	129.2549	-19.2339***
12	25	134.7143	137.1429	-0.5012
13	85	82.5455	104.7727	-6.2752***
14	25	109.000	112.7143	-0.8371

Table XVIII shows the same data as Table XVII; i.e., scores achieved on Teaching Research Motor Development Scale, school by school, only it is presented in graphic form for easy comparisons.

TABLE XVIII
MOTOR DEVELOPMENT - MEAN GAINS (Total)

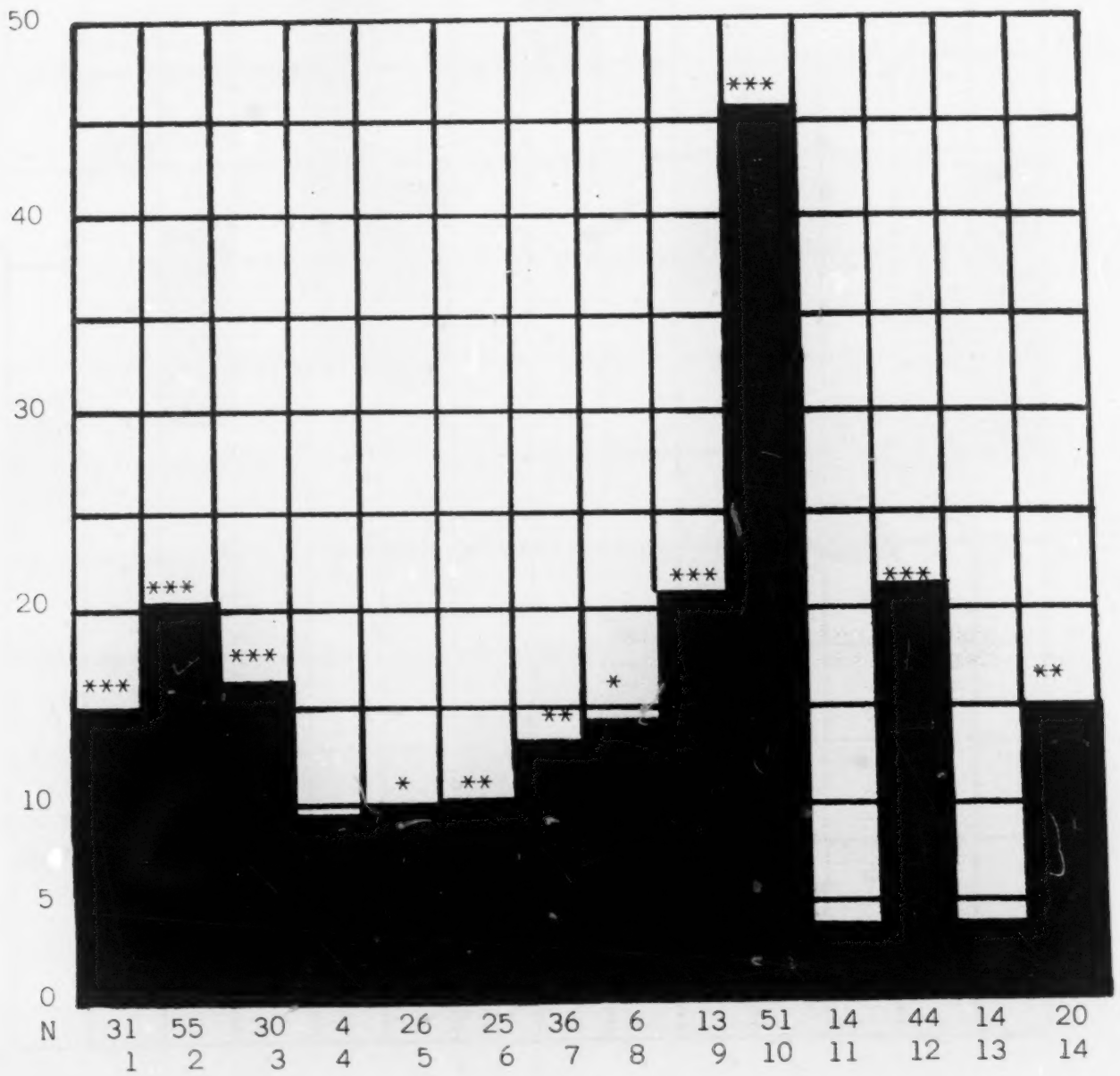
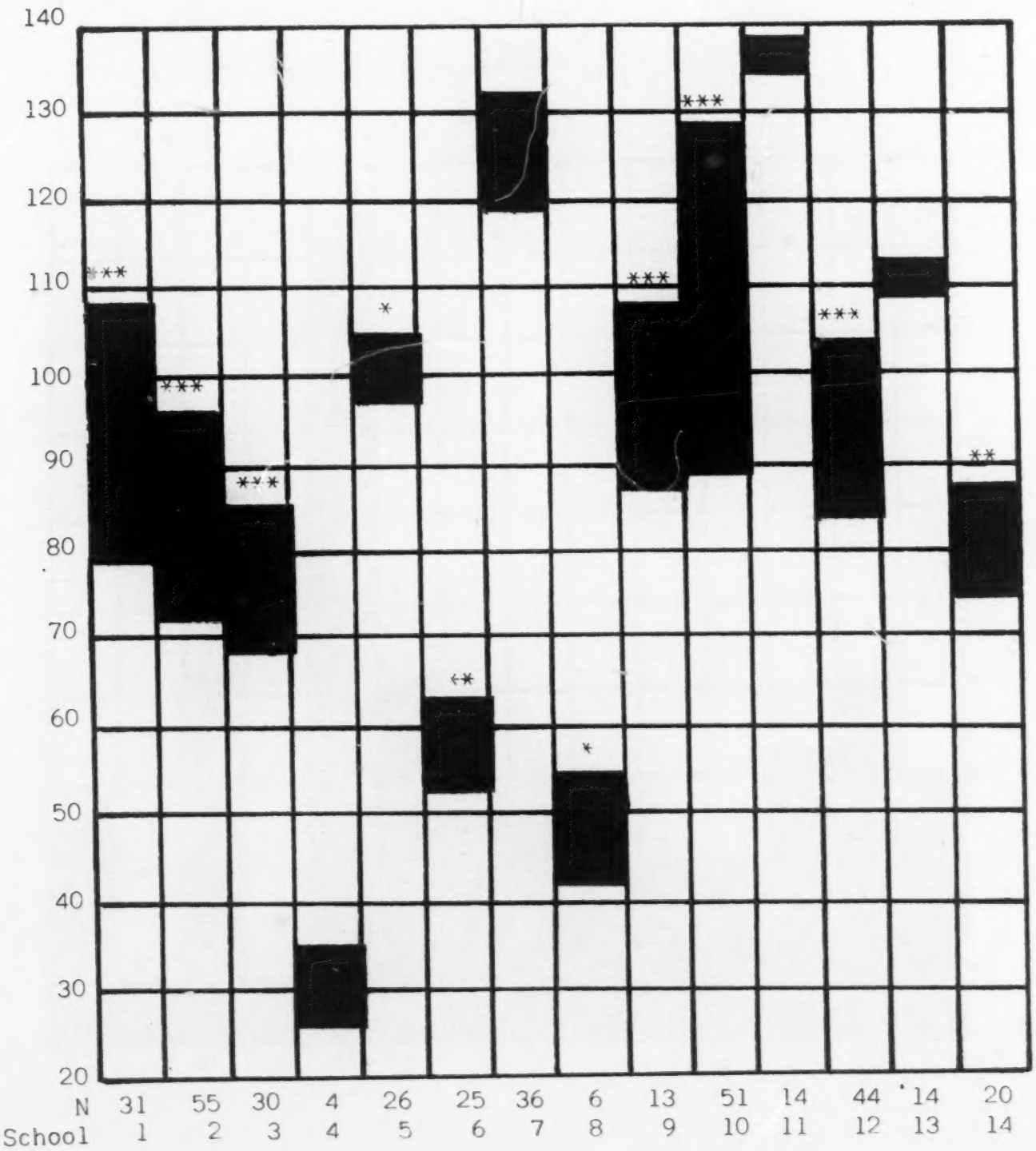


Table XIX indicates the mean gains achieved on Teaching Research Motor Development Scale and also the relative beginning and ending levels at which the children in the various schools were functioning. No particular pattern is apparent from this Table since school No. 10 made the largest gain and yet was at a relative position well above the average at the commencement of the period.

TABLE XIX

MOTOR DEVELOPMENT PRE-POST (TOTAL)



There are 12 sub-tests on the Teaching Research Motor Development Scale. Table XX shows the mean given on the Teaching Research Motor Development Scale by sub-tests.

TABLE XX

MEAN GAIN MOTOR DEVELOPMENT SUBTESTS (BY SCHOOL)

SUBTEST School	N	1	2	3	4	5	6
1	59	7.0645-9.0000	2.4194-3.0968	6.3871-7.9355	1.1613-1.8387	4.8387-5.7097	12.2903-12.9677
		-2.4019*	-2.5281*	-2.2780*	-2.5281*	-1.1912	-1.1912
2	107	7.6909-12.4182	2.3455-3.4909	5.4000-7.9818	.9818-1.8909	5.4000-7.0000	9.9818-12.0545
		-7.1593***	-5.0494***	-6.1858***	-4.5124***	-4.7485***	-4.7160***
3	57	3.7000-5.1000	2.5000-3.7000	5.4000-6.8000	.8000-1.6000	3.5000-3.5000	11.6000-12.5000
		-1.2388	-3.0262**	-1.9187	-3.2474**	0	-1.6634
4	5	2.2500-2.2500	.7500-.7500	3.7500-4.5000	1.5000-1.5000	1.5000-1.5000	3.7500-5.2500
		2.0000	0	-0.3974	2.0000	2.0000	-0.7746
5	49	11.8462-12.4615	3.6923-3.4615	8.0769-9.9231	2.0769-1.8462	6.9231-6.923.	13.0385-13.1154
		-.5972	.5698	-3.1923**	.7001	0	- .1046
6	47	4.2000-5.5200	2.5600-2.7600	4.5600-5.2800	.3600-1.3200	2.2800-3.1200	10.3200-11.6400
		-1.1748	-0.4364	-1.2377	-3.3607**	-1.3706	-1.3055
7	69	14.2500-14.6667	4.0000-4.0000	9.7500-11.3333	2.6667-2.7500	10.3333-11.5000	13.4167-13.4167
		- .4972	0	-2.2238*	- .3734	-1.9042	0
8	9	8.6667-11.0000	3.0000-4.5000	5.0000-6.0000	1.5000-1.0000	3.5000-3.0000	4.5000-10.5000
		-1.8196	-2.2361	-0.5423	1.0000	.5423	-3.8730***
9	23	8.3077-11.5385	3.2308-3.4615	7.8462-9.9231	1.3846-2.3077	6.2308-9.6923	11.7692-12.4615
		-3.0921**	-0.5620	-1.6121	-1.7598	-2.5600*	-0.7620
10	37	10.2000-11.3500	2.7000-2.4500	4.3500-7.1500	.7500-2.2500	4.2000-6.4000	8.4000-8.8500
		-1.2256	.4695	-3.0744**	-4.3538***	-2.4877*	- .6789
11	99	8.2941-20.9216	3.2941-5.1765	7.0588-10.4706	1.0000-2.4118	2.2941-5.8824	12.4706-12.7059
		-9.0890***	-5.4402***	-6.8621***	-6.6667***	-6.1000***	- .3561
12	25	16.0000-16.2857	4.7143-4.2857	11.0714-11.7857	2.5714-2.5714	11.1429-11.3571	14.2857-14.5714
		- .1874	.6183	-1.0340	0	- .3661	- .5112
13	85	10.7727-14.8636	2.9318-3.5909	7.9091-10.1591	2.3182-2.2955	7.3864-9.7727	9.9545-11.7500
		-4.4491***	-2.1741	-3.3966**	.2744	-3.2687**	-2.5430
14	25	12.7857-12.0000	3.5714-3.2143	10.5714-8.7857	2.3571-2.1429	10.6429-8.7857	11.2857-13.7143
		.3322	.4528	1.4439	1.0000	1.6384	-2.9254**

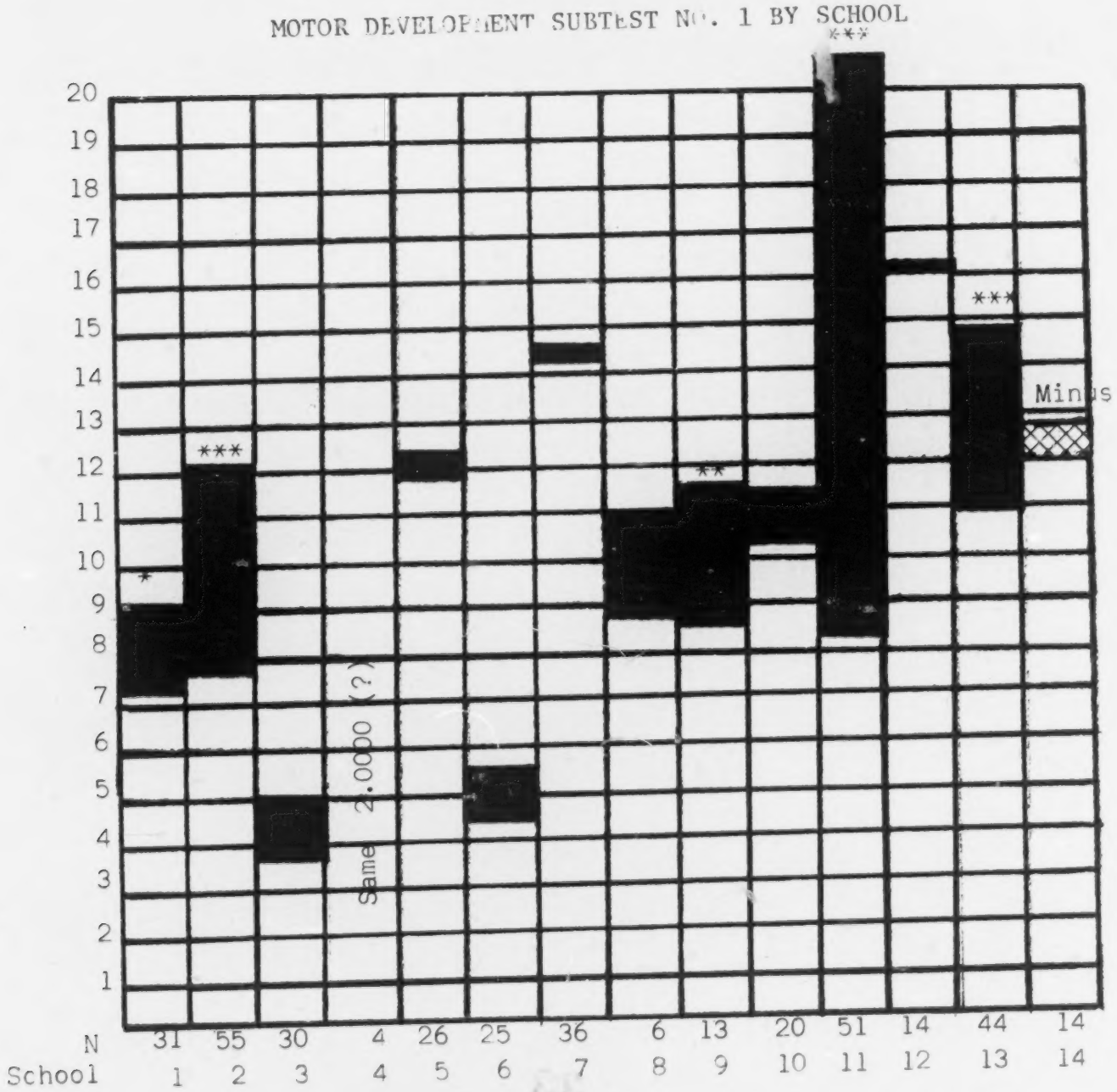
* = .05
** = .01
*** = .001

7	8	9	10	11	12
6.9032-7.0645	3.3871-3.2581	7.0000-10.1613	8.9677-10.5161	6.0323-9.1613	11.6764-13.1290
-0.3393	.2874	-4.0660***	-2.7554**	-4.6260***	-1.8813
5.9455-7.1455	4.3091-4.7455	7.9455-9.6727	6.6545-8.0182	5.4364-6.8909	10.9636-12.2182
-4.6151**	-1.3741	-3.9675**	-3.9457**	-3.0542**	-2.7493**
4.8000-5.1333	2.6667-4.8333	7.1667-8.2000	8.7000-12.2000	6.7667-8.1000	10.9333-12.3000
-0.9182	-4.7878***	-1.1152	-6.0885***	-1.9502	-1.3058
2.7500-3.7500	.2500-.5000	1.0000-2.0000	2.2500-6.0000	1.2500-1.0000	4.5000-5.5000
-0.9258	-1.000	-1.4142	-1.9419	.5222	-0.2626
5.8462-7.5385	4.7692-3.6923	10.9231-14.7692	8.1538-10.4615	7.2692-10.1154	11.8077-13.2308
-2.8113**	Loss 2.1193	-4.8464***	-3.4458**	-3.5603***	-1.5113
4.0000-4.9200	2.6000-3.4000	4.1200-5.8400	4.4400-5.7200	3.3600-5.0800	9.2400-11.6000
-1.1024	-1.9033	-1.5582	-1.6782	-2.1872*	-1.9901
8.7178-8.5278	4.9444-6.4722	15.5833-15.1389	11.9167-14.1389	8.9167-10.6667	13.0556-14.1389
.8010	-5.[illegible]**	.5892	-3.4990**	-2.1709*	-2.3814
3.5000-2.6667	1.1667-1.8333	3.3333-6.0000	4.5000-9.6667	.6667-1.0000	2.0000-0.0000
1.2741	-1.5811	-2.7937*	-1.9130	-0.5423	1.0000
7.0000-2.6667	4.7692-5.4615	8.2308-13.1538	9.0769-13.1538	9.1538-10.3077	9.1538-11.0769
.3050	-0.9392	-5.2549***	-3.8723***	-1.5945	-1.5539
5.1000-7.0500	3.5500-5.1000	7.3000-9.9000	8.0500-9.1500	5.2500-5.4000	13.5500-11.9000
-4.1242***	-2.8430**	-2.0994*	-1.2343	- .3753	1.9135
7.2549-9.3529	6.3333-8.6275	12.1373-14.7255	9.7059-12.7647	0.4902-12.3137	12.9608-13.7059
-6.1946***	-6.0178***	-4.7461***	-7.2111***	-10.3104***	-1.3207
8.2143-9.2857	8.7143-8.9286	17.3571-18.2857	14.4286-14.8571	12.1429-12.7143	15.3571-14.0000
-3.1596**	- .3995	-2.0614*	- .6114	- .7238	2.1398*
6.7273-6.3636	4.7273-5.7727	9.5227-11.0000	7.8864-9.4091	5.8409-7.9545	6.7727-9.7727
.5634	-2.5666*	-1.4408	-1.8579	-3.3209**	-3.1519**
8.0000-8.1429	7.3571-6.3571	11.7143-13.1429	12.0714-13.0714	8.7857-10.7143	12.9286-14.0714
-0.4136	.9539	-1.5766	-1.3769	-1.9560	-1.5927

Tables XXI through XXXII show the mean gain on the motor development test, subtest by subtest, as well as the relative beginning and ending positions for each school. To make this series of graphic presentations more meaningful, the title of each subtest is given plus an example of one of the tasks presented on the subtest.

TABLE XXI
MOTOR DEVELOPMENT
Subtest: Balance-flatfoot.

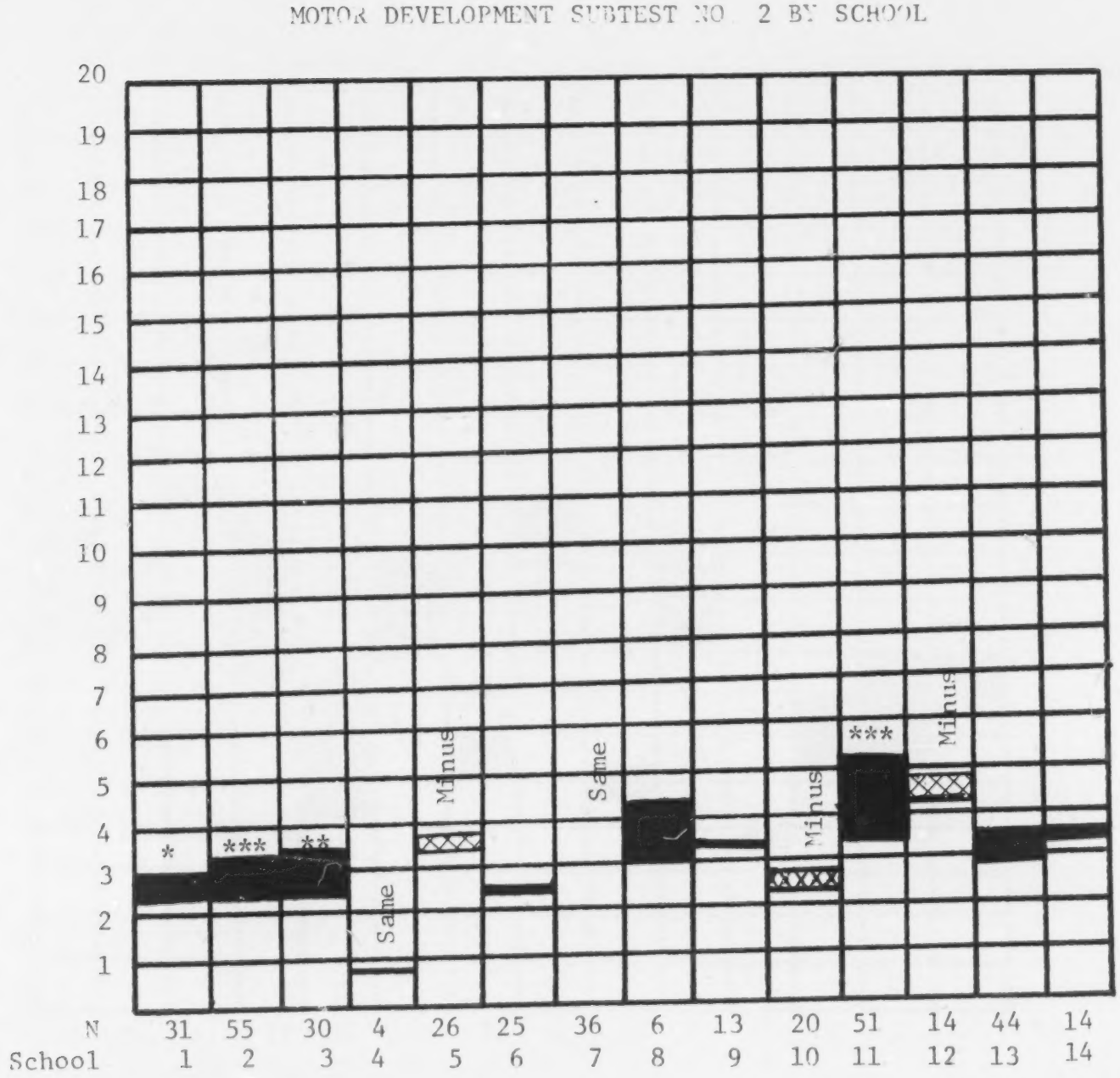
Example of tasks: Stand in an upright position, eyes open, with one foot placed directly in front of the other so that the heel of the forward foot touches the toe of the other (hold for 5 seconds without breaking heel-toe contact).



Tables XXI through XXXII show the mean gain on the motor development test, subtest by subtest, as well as the relative beginning and ending positions for each school. To make this series of graphic presentations more meaningful, the title of each subtest is given plus an example of one of the tasks presented on the subtest.

TABLE XXII
MOTOR DEVELOPMENT
Subtest: Balance toe

Example of tasks: Jump up and down rapidly on toes with feet together. (Success if S jumps with feet together on toes and only toes for 5 times in 5 seconds or less.)

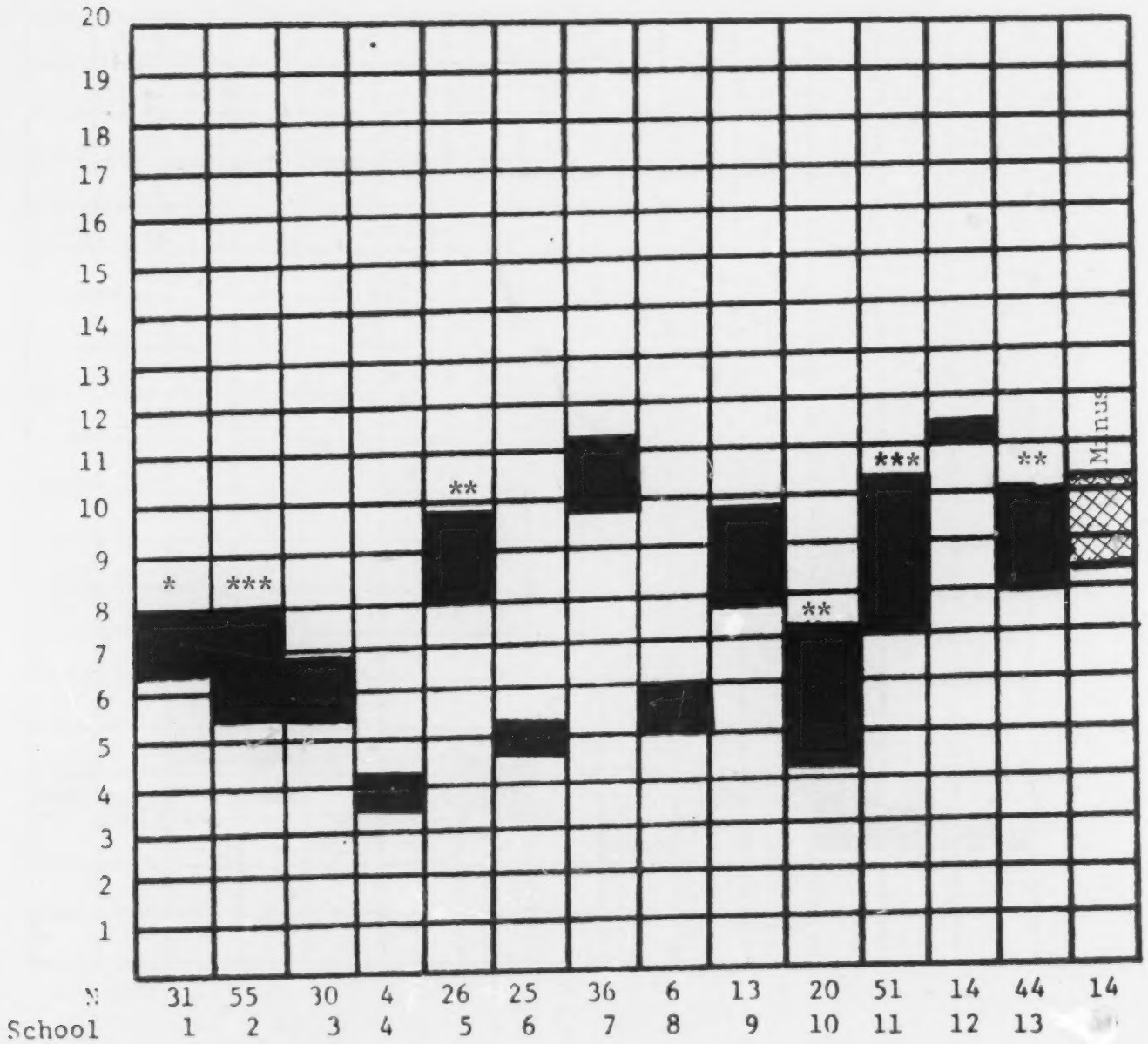


Tables XXI through XXXII show the mean gain on the motor development test, subtest by subtest, as well as the relative beginning and ending positions for each school. To make this series of graphic presentations more meaningful, the title of each subtest is given plus an example of one of the tasks presented on the subtest.

TABLE XXIII
MOTOR DEVELOPMENT
Subtest: Eye-foot coordination

Example of tasks: Walking forward on 1-foot square spaced six inches apart.

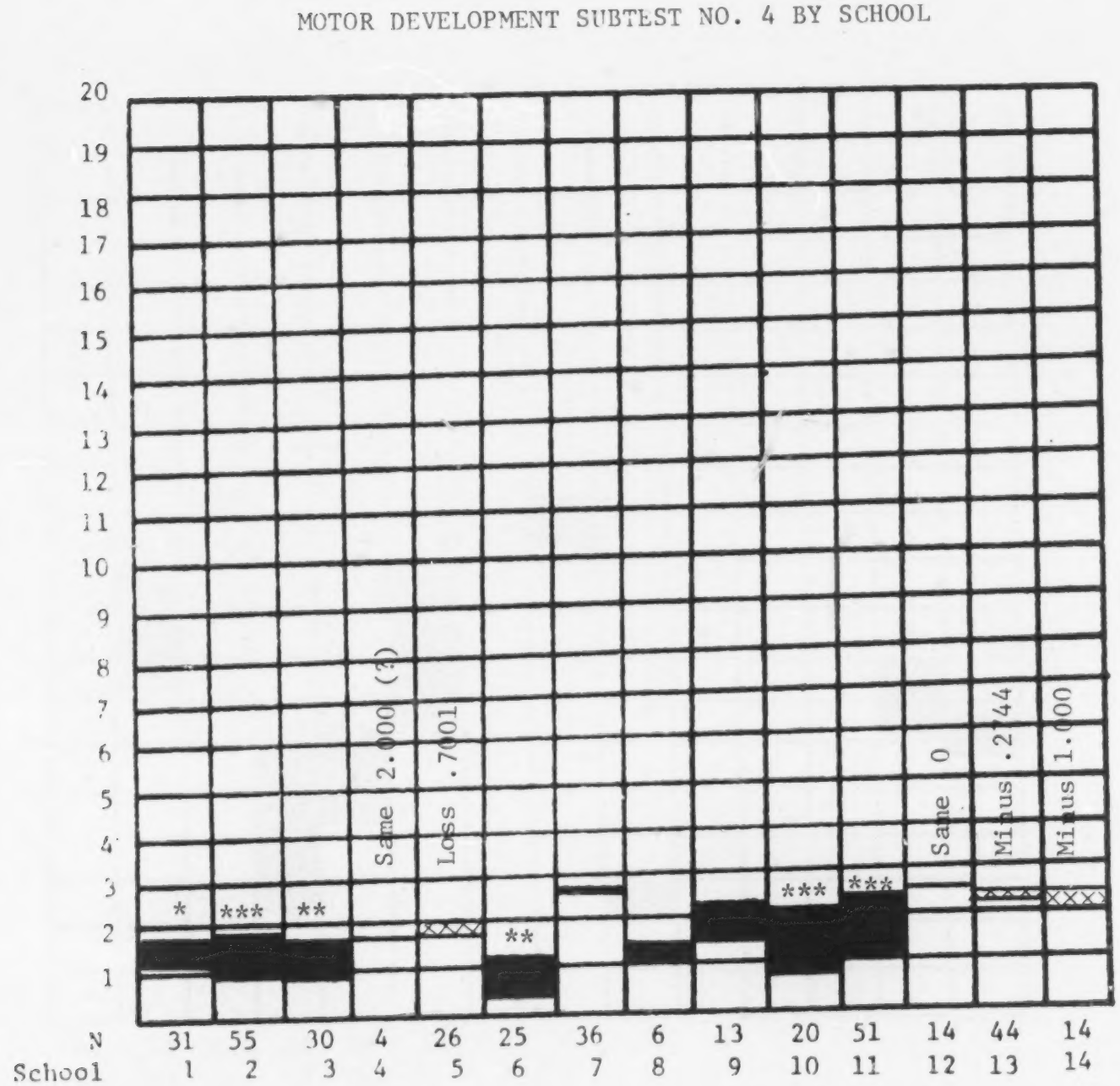
MOTOR DEVELOPMENT SUB-TEST NO. 3 BY SCHOOL



Tables XXI through XXXII show the mean gain on the motor development test, subtest by subtest, as well as the relative beginning and ending positions for each school. To make this series of graphic presentations more meaningful, the title of each subtest is given plus an example of one of the tasks presented on the subtest.

TABLE XXIV
MOTOR DEVELOPMENT
Subtest: Gross motor imitation

Example of tasks: Examiner stands facing subject. The subject is asked to imitate or mirror the movements of the examiner's arms.

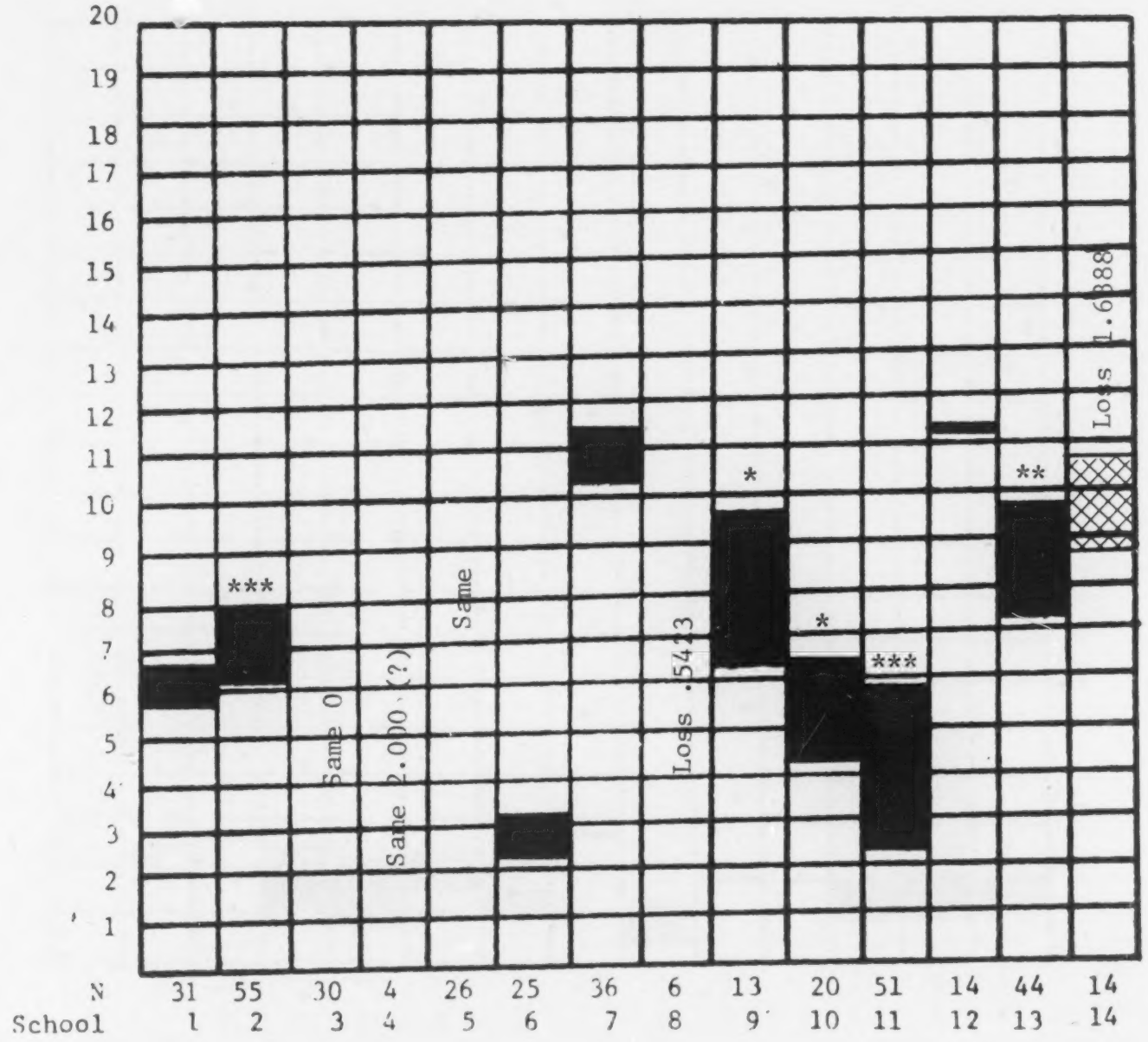


Tables XXI through XXXII show the mean gain on the motor development test, subtest by subtest, as well as the relative beginning and ending positions for each school. To make this series of graphic presentations more meaningful, the title of each subtest is given plus an example of one of the tasks presented on the subtest.

TABLE XXV
MOTOR DEVELOPMENT
Subtest: Finger dexterity

Example of tasks: Subject is to touch all the fingertips of one hand in succession with the thumb of the same hand beginning with the little finger.

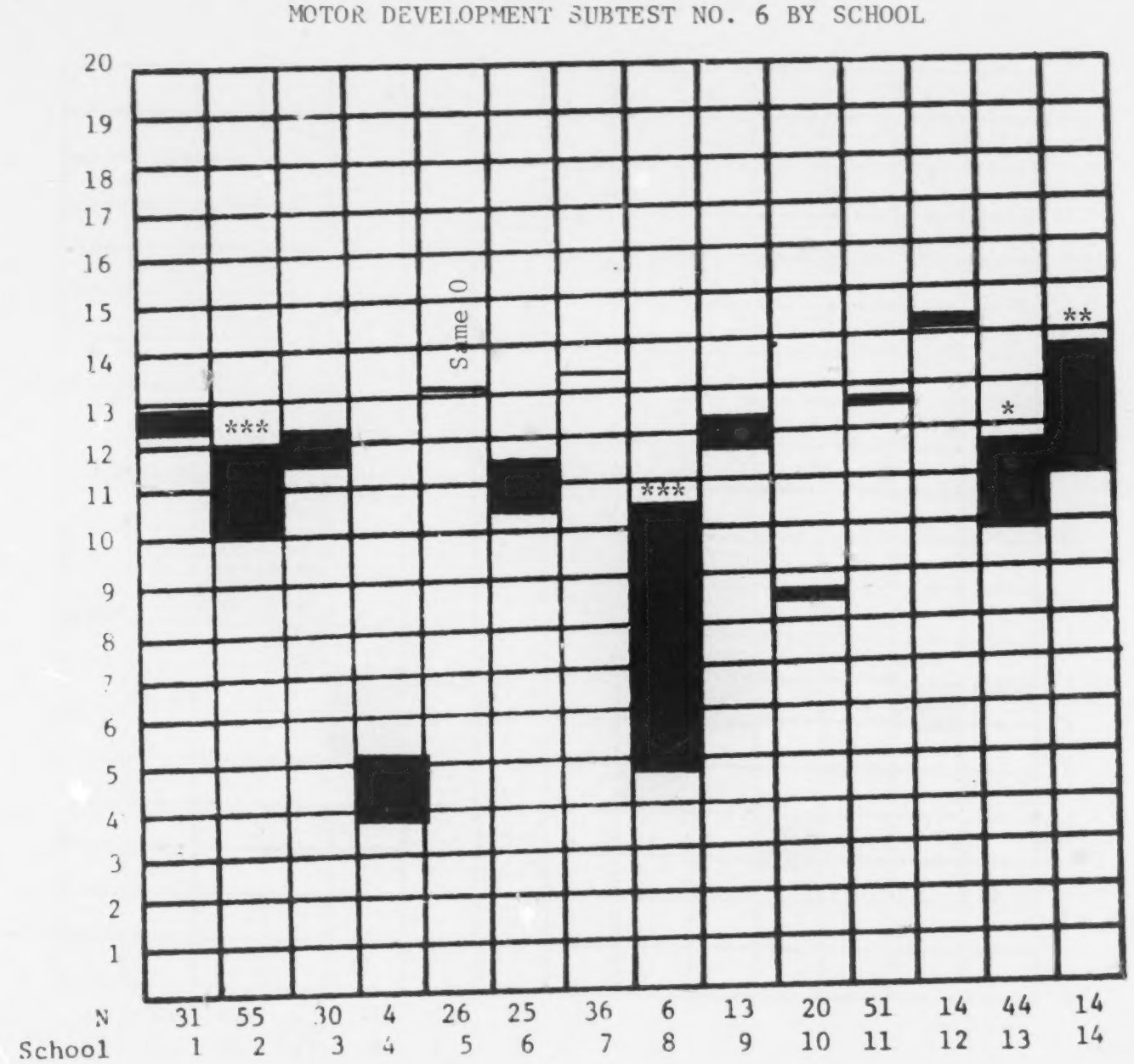
MOTOR DEVELOPMENT SUBTEST NO. 5 BY SCHOOL



Tables XXI through XXXII show the mean gain on the motor development test, subtest by subtest, as well as the relative beginning and ending positions for each school. To make this series of graphic presentations more meaningful, the title of each subtest is given plus an example of one of the tasks presented on the subtest.

TABLE XXVI
MOTOR DEVELOPMENT
Subtest: Space perception and jumping

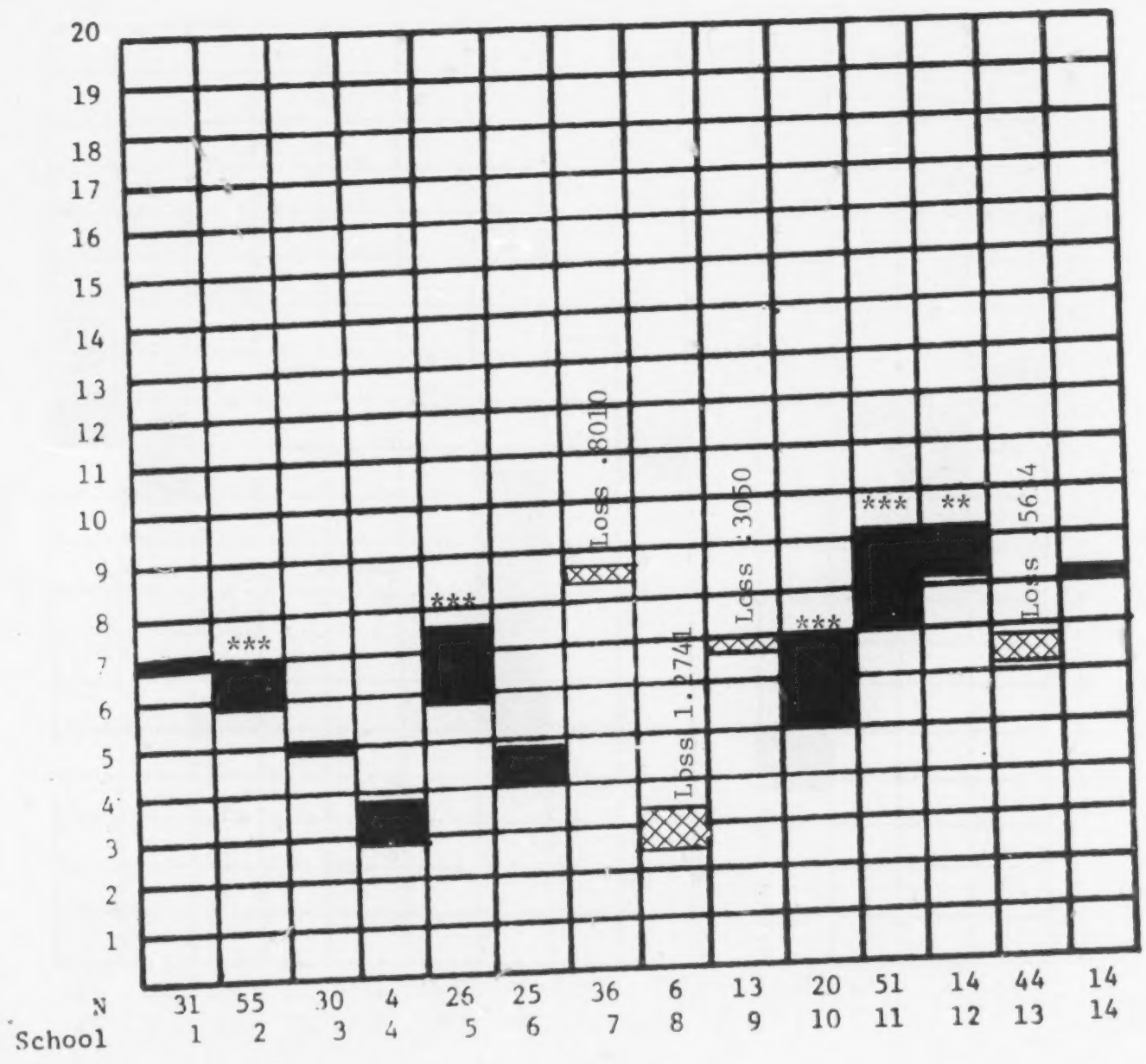
Example of tasks: Jumping a bar ankle high, between ankle and knee and knee high.



Tables XXI througl. XXXII show the mean gain on the motor development test, subtest by subtest, as well as the relative beginning and ending positions for each school. To make this series of graphic presentations more meaningful, the title of each subtest is given plus an example of one of the tasks presented on the subtest.

TABLE XXVII
MOTOR DEVELOPMENT
Subtest: Eye-hand coordination

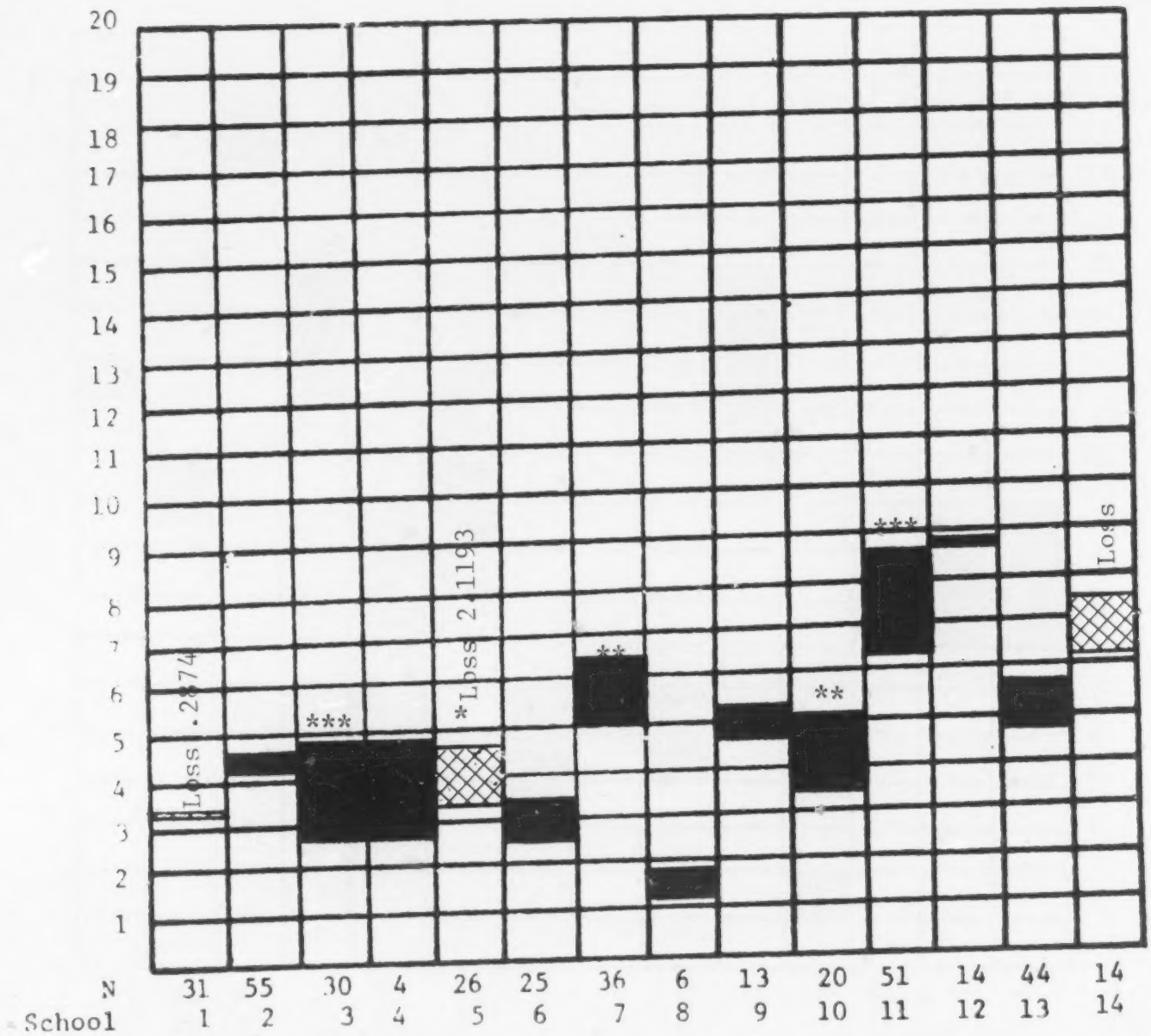
Example of tasks: Placing match sticks one by one in box – (timed).



Tables XXI through XXXII show the mean gain on the motor development test, subtest by subtest, as well as the relative beginning and ending positions for each school. To make this series of graphic presentations more meaningful, the title of each subtest is given plus an example of one of the tasks presented on the subtest.

TABLE XXVIII
MOTOR DEVELOPMENT
Subtest: Eye-hand/foot coordination

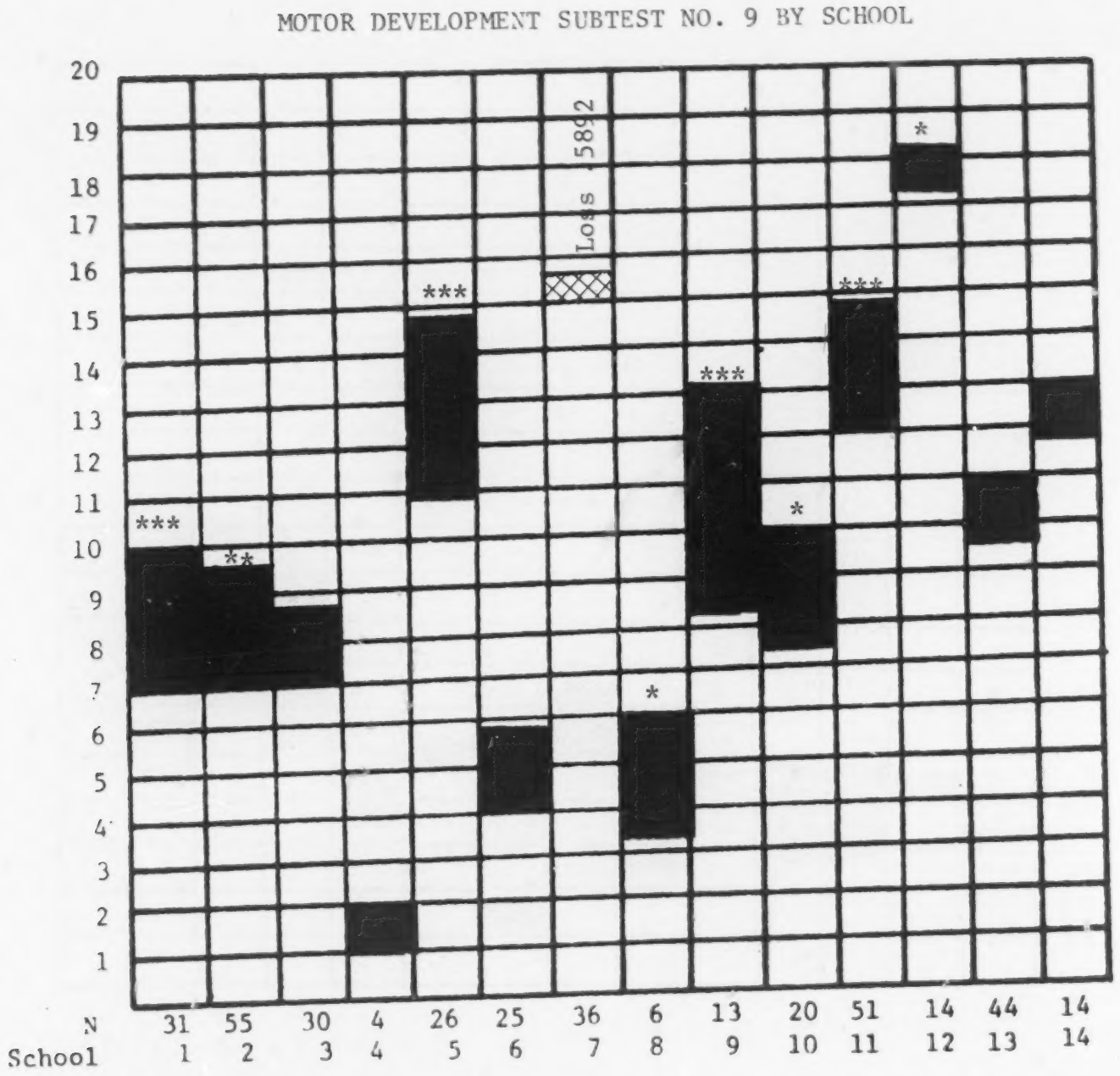
Example of tasks: Subject is to wind a 6½ foot thread around his index finger as quickly as he can while walking.



Tables XXI through XXXII show the mean gain on the motor development test, subtest by subtest, as well as the relative beginning and ending positions for each school. To make this series of graphic presentations more meaningful, the title of each subtest is given plus an example of one of the tasks presented on the subtest.

TABLE XXIX
MOTOR DEVELOPMENT
Subtest: Pencil manipulation

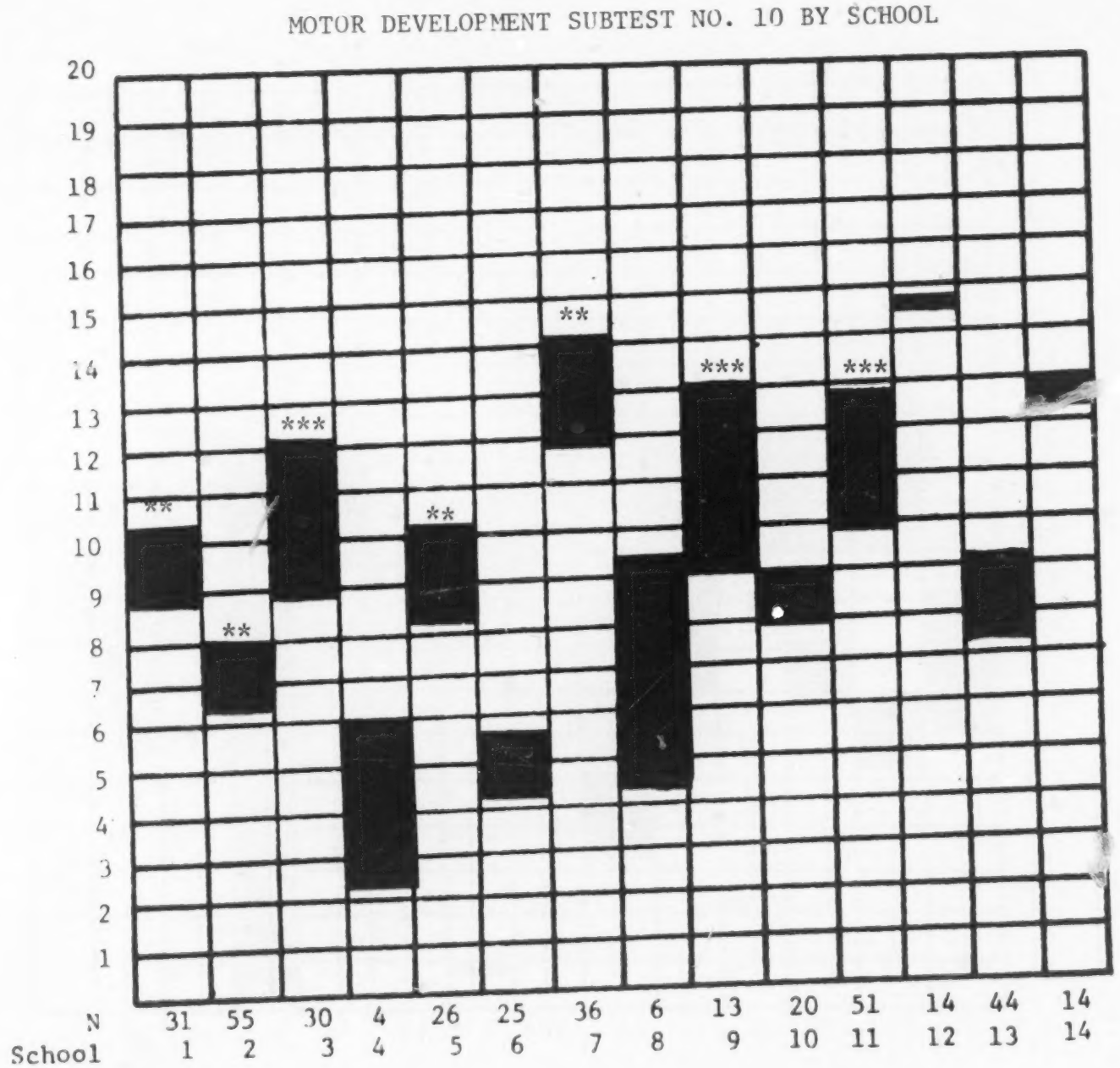
Example of tasks: Tracing mazes (timed).



Tables XXI through XXXII show the mean gain on the motor development test, subtest by subtest, as well as the relative beginning and ending positions for each school. To make this series of graphic presentations more meaningful, the title of each subtest is given plus an example of one of the tasks presented on the subtest.

TABLE XXX
MOTOR DEVELOPMENT
Subtest: Scissors manipulation

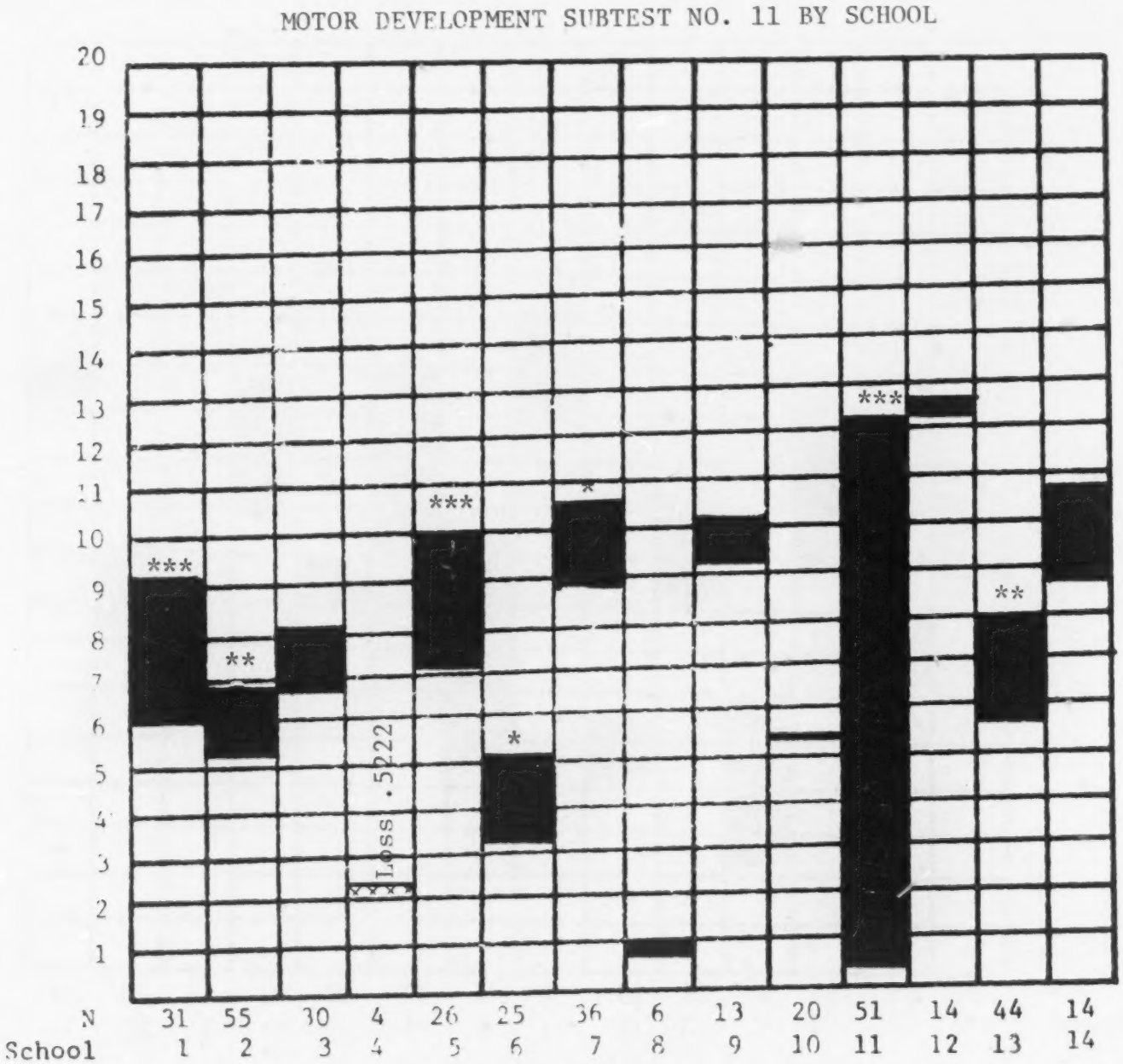
Example of tasks: Subject is to cut along a ½ inch wide dark line for six inches.



Tables XXI through XXXII show the mean gain on the motor development test, subtest by subtest, as well as the relative beginning and ending positions for each school. To make this series of graphic presentations more meaningful, the title of each subtest is given plus an example of one of the tasks presented on the subtest.

TABLE XXXI
MOTOR DEVELOPMENT
Subtest: Ball catching

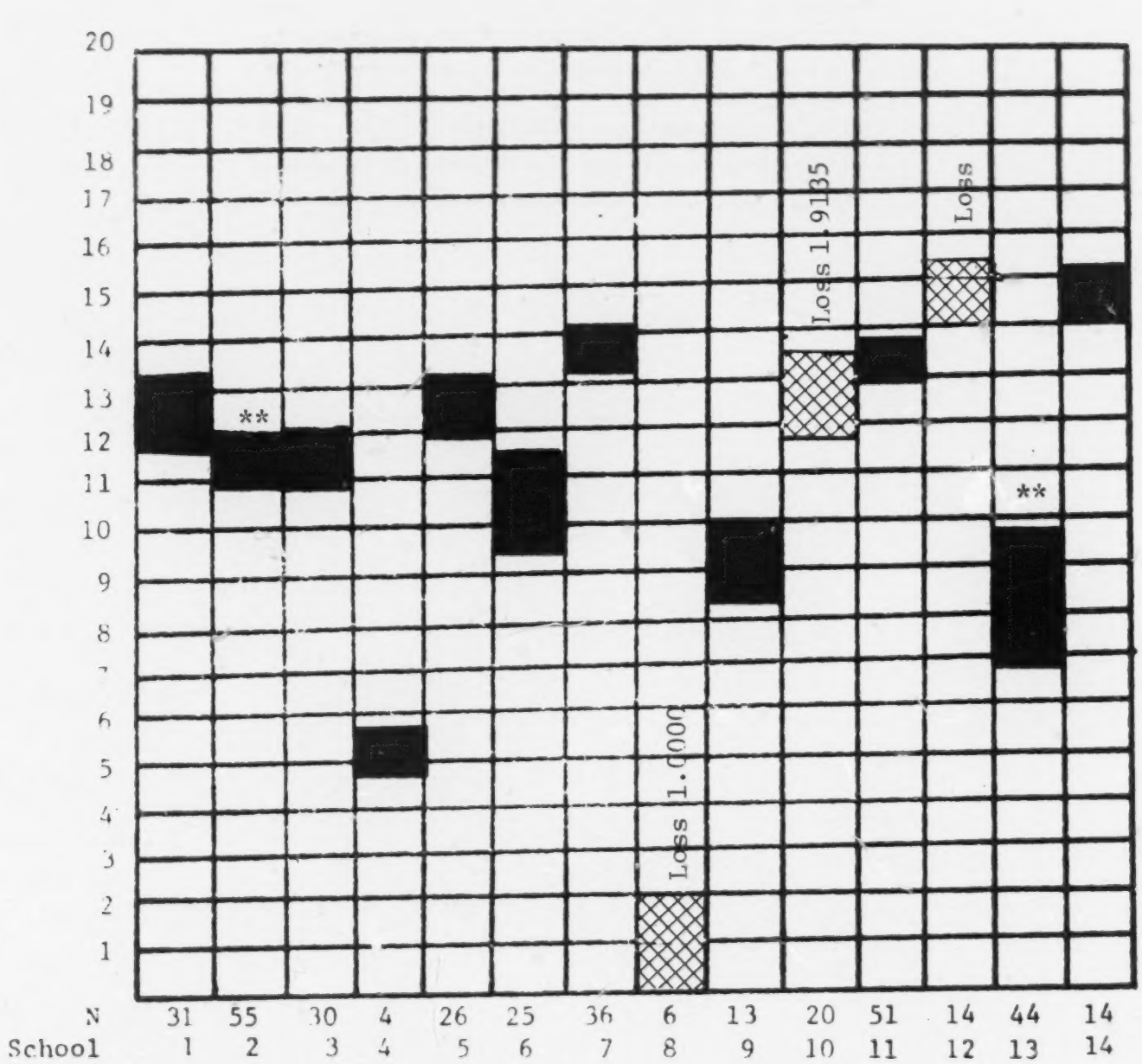
Example of tasks: The examiner stands six feet away and lobs a tennis ball to the subject to catch. The number of times the ball is caught is recorded.



Tables XXI through XXXII show the mean gain on the motor development test, subtest by subtest, as well as the relative beginning and ending positions for each school. To make this series of graphic presentations more meaningful, the title of each subtest is given plus an example of one of the tasks presented on the subtest.

TABLE XXXII
MOTOR DEVELOPMENT
Subtest: Ball throwing

Example of tasks: Subject throws a tennis ball at a target six feet away.



ANALYSIS BY AGE GROUPINGS

Another variable that was analyzed statistically was age levels of the children. This aspect is important in designing specific curricula. Data is available on each subtest for each of the three scales by age bands. However, only total scale results are shown in this report.

The selection of the five age bands corresponds roughly to regular school programs; for example, 0-5 representing the age span of a typical pre-school program. In fact, however, this data does not include any child below the age of 4. The second age band roughly equates to the age represented by most regular elementary grades; the 10-13 age span equating with junior high programs, 14-18, high school age, and 19 and over to post-high school ages.

Table XXXIII shows the results of the Parsons Language Sample by age. All ages demonstrated significant differences in language. The greatest gains, as shown in Table XXXIII were by the 0-5 age group. The next greatest gains were by the 6 to 9 year-old group. This table shows the results indicating where the children were at the beginning of the period and where they were at the end of the period.

The Parsons Language Sample claims to be a developmental scale. The results as shown on this Table would support that statement since the children who are older achieved higher scores on the test.

The most important conclusion to be drawn from this Table is that even though the older children do achieve higher scores at the beginning of the period, they still continue to achieve sizable gains, indicating that instruction in language should not cease because the child is past the age of 18.

TABLE XXXIII
PARSONS LANGUAGE SAMPLE (TOTAL) BY AGE
PRE-POST

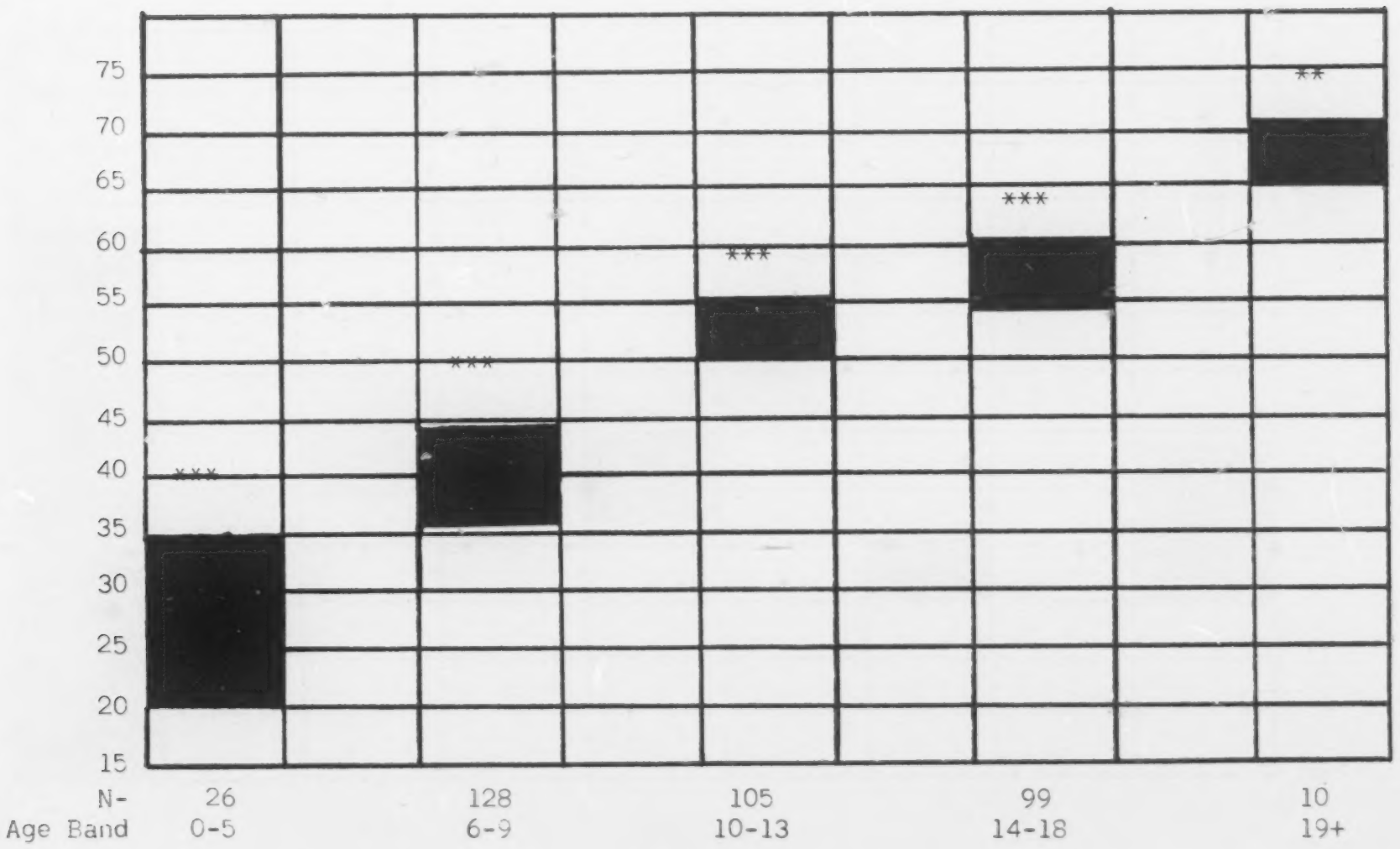


Table XXXIV indicates the results of the Gunzberg Progress Assessment Chart (Self-help skills) by age bands. All age groups showed significant gains on the total test although age group 14-18 showed significance at the .05 level which indicates less gain relative to the other age groups. Examination of the subtest (not shown) shows that age group 6-9 was non-significant in socialization area, age group 14-18 was non-significant in the self-help area, and age group 19 and above was non-significant at the communication area.

An examination of Table XXXIV is very interesting for it shows that age group 19 and above made the greatest gains on the Gunzberg scores and they started at the lowest level. This phenomenon may be the reflection of a lack of previous schooling in some of these areas. This trend is noted throughout all of the subtests.

TABLE XXXIV
GUNZBERG (TOTAL) BY AGE
PRE-POST

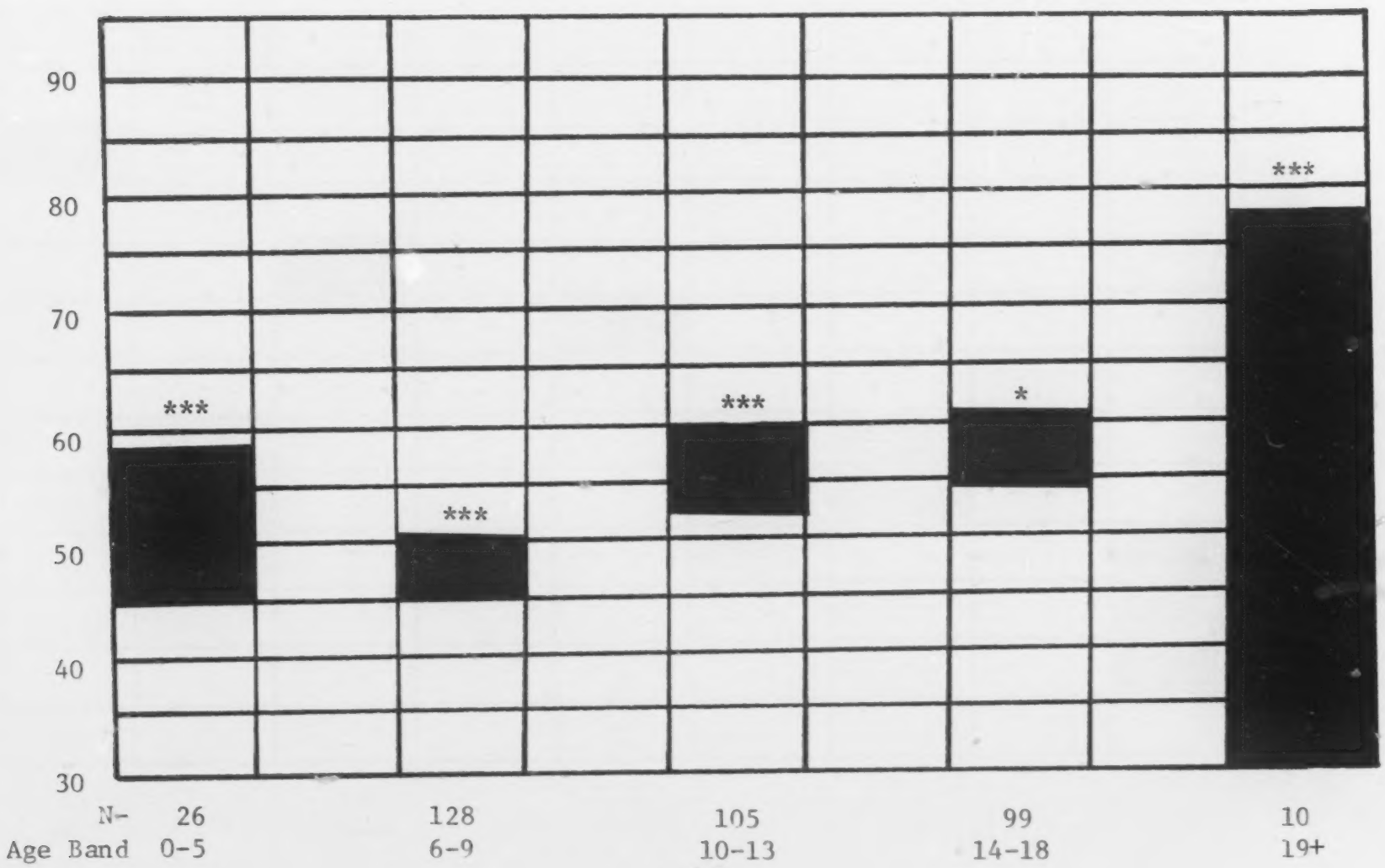
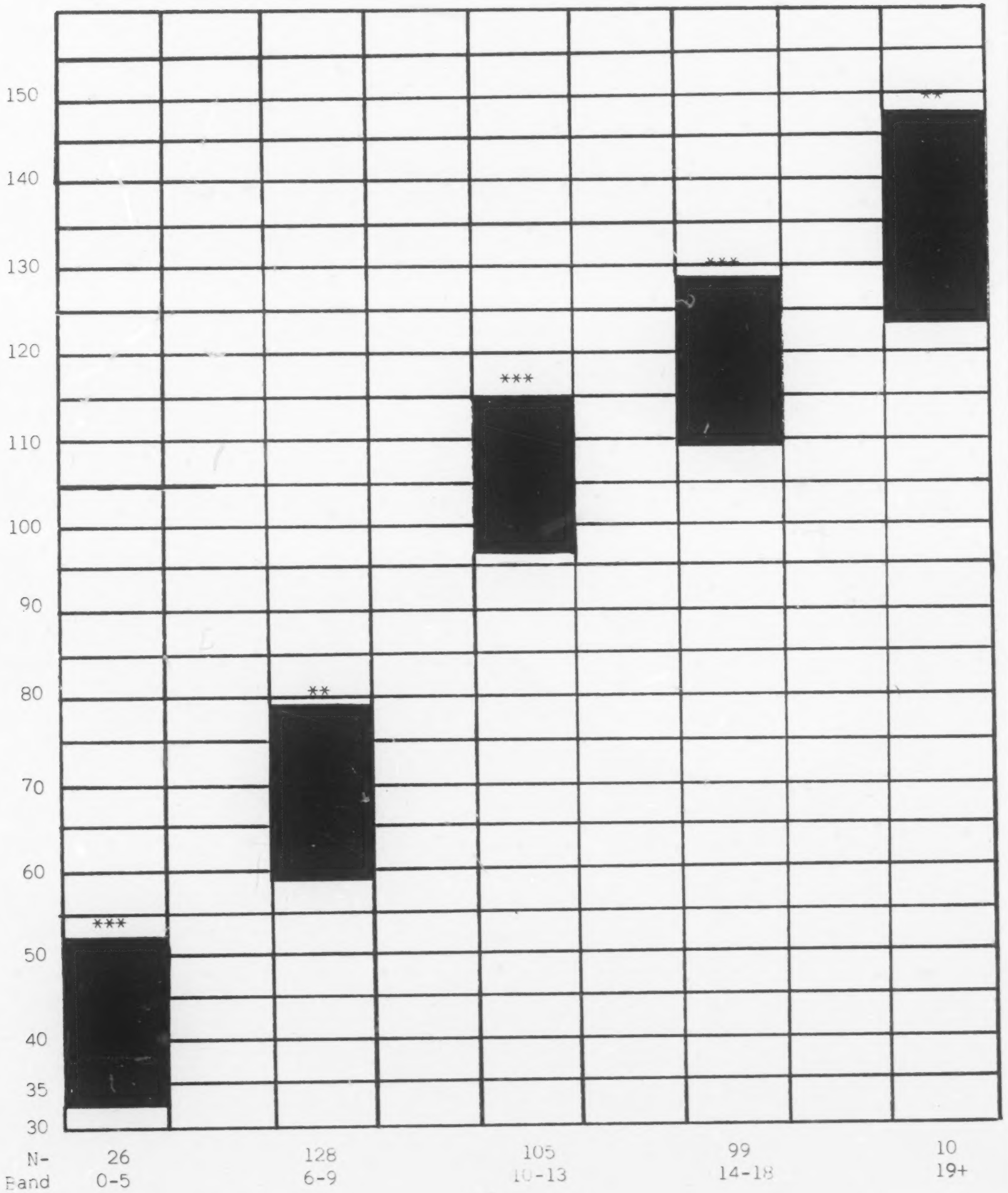


Table XXXV shows the gains achieved on the Motor Development Scale by age groups. Again, all ages achieved significant gains at the .01 level or better. The Motor Development Scale is designed with developmental principles, consequently, the older children should be able to score much higher than the younger. The results as shown on Table XXXV amply demonstrate suport for this claim. Another conclusion which is justified to state is that motor development skills should be taught at every age level even beyond age 19.

TABLE XXXV

MOTOR DEVELOPMENT SCALE (TOTAL) BY AGE

PRE-POST



SUMMARY AND CONCLUSIONS

In conclusion it can be stated with a high degree of authority that trainable mentally retarded children along the entire age span of 4 to 21 years can and do learn and can and do profit from a well organized, structured program, regardless of the array of variables unique to each separate program. The inference is that such learning potential did not start at age 4 nor does it end at age 21 and when activities relevant to the life needs of the retarded are presented in a developmental sequence, or a chronological sequence, or both, that learning experiences can produce measurable change throughout the life span of the retarded.

UTILIZATION OF DATA

The evaluation procedure and data reported herein are important because they indicate that significant change did occur and we could justifiably infer that other such programs will also produce similar changes. To gain evidence of this fact is reason enough to evaluate program effectiveness of the trainable retarded classes; however, this was not the only reason the Mental Health Division concerned itself with program evaluation.

The main purpose in investing time in this evaluation procedure was not to obtain a static status report of a situation as it now exists, as dramatic as it may be. Rather, evaluation was done to provide the tool to effect curriculum development and program improvement.

With the information gathered from the tests and subtests, a profile can be drawn of each program. The staff of the Community Mental Retardation Section can use these program profiles to do constructive consultation. For example, whatever it is that is occurring in school No. 5 insofar as language development is concerned (see Table II), it will behoove the Mental Health staff to closely investigate, observe, document, and hopefully disseminate their procedures to other programs. Or, conversely, the staff will try to aid school No. 4 in the area of motor skills (see Table IV). In brief, the consultative visits will be based on a plan for improvement. Materials introduced to the staffs at the schools will be relevant to this plan. Inservice training programs will be relevant to the needs of the staffs at the individual schools. Without data arrived at through evaluation, consultative visitations to improve a program can at best be only educated guessing; at worst, mere coffee stops.

CONTINUED EVALUATION

A pre-test – post-test design, as has been already stated, is an adequate model of evaluation. It does have several weaknesses, as we have used it in this evaluation, i.e., change was computed on a *group* basis, and evaluation was taken at two distinct times many months apart.

The ultimate in evaluation, we believe, is to have continual evaluation on an individual basis. This is the direction we are going as we proceed with evaluation into the second year of the program. It takes time to train a staff in a statewide program in the technique of gathering data, charting and recording on an individual child basis. The main goal in the first year was to get our teachers and aides to "think evaluation" – this was accomplished. Our goal for the second year was to give the teachers a format to enable them to do continuous evaluation rather than just a pre-post test. This also has been accomplished. The teachers and aides are on the 4th month of this phase. Its effectiveness has yet to be evaluated but the concept has been readily accepted because of their experiences the first year with evaluation. It may be several years before the next phase of the evaluation plan can be totally effected; that is, continuous individual evaluation.

We may be critized by some of our colleagues for not going immediately to the most sophisticated form of evaluation known to us at this time. However, as educators we feel that most tasks are learned in a developmental sequence and since we were dealing with a new staff who primarily had no evaluation experience (there are some outstanding exceptions), we felt that an orderly 'phase-in' plan was justified.

The final point that must be made is to answer the question: "What is significance?" We are not posing entirely a statistical question. It is true that many of the changes described in this report would statistically occur by chance alone only once in a thousand cases. How can this be translated to parents so that they might better plan their child's future? Or to teachers so that they will receive encouragement for their efforts? Or to state officials who have the difficult task of allocating state resources? Does this report suggest that if these children continue at this rate of growth that they will be completely independent members of our society in a few short years? Unfortunately *no* such inference can correctly be made. It can be said and be supported with data that most of the so-called trainable retarded can be educated in the community, to live at home, take part in community recreation, go to churches in their community, ride public busses, eat with their families in fine restaurants, go fishing, work at a wide array of tasks, develop a wholesome personality, sing, dance, have pride in their grooming, develop good manners, have a sense of humor, enjoy T.V. and the comic strips; will respect their parents, teachers, the policeman and all authority figures, etc.

We believe these things are what significance really means.

PARTICIPATING AGENCIES

This alphabetical list does not correlate with the order in which they appear throughout the evaluation.

BEAVERTON PUBLIC SCHOOLS No. 68
Robert N. Gourley, Superintendent

CLACKAMAS CHILD TRAINING CENTER
Oregon City
Mrs. Henrietta Cranston, Director

COOS COUNTY INTERMEDIATE EDUCATION DISTRICT
Mr. Thomas J. Walker, Superintendent
Director

CORVALLIS SCHOOL DISTRICT 509J
Dr. Clarence D. Kron, Superintendent-Clerk,
Director

EMILY SCHOOL FOR MENTALLY RETARDED CHILDREN
Sister Marcella Ann, Administrator

THE HAVEN SCHOOL
Mrs. Maxine Warner, Director

JOSEPHINE COUNTY ASSOCIATION FOR RETARDED CHILDREN
Mr. Kim Jordan, President

LINN-BENTON INTERMEDIATE EDUCATION DISTRICT
Mr. William Dolmyer,
Superintendent, Director

MARY KAY SCHOOL, Ontario
Mrs. Kay Mollahan, Director

ME RE CENTER, Gresham
Mrs. Donald Place, Director

OPPORTUNITY CENTER OF CENTRAL OREGON,
Redmond
Mr. Arthur B. Tassie, Director

PEARL BUCK CENTER, Eugene
Mrs. Elisabeth Waechter, Director

PORTLAND CHILDREN'S CENTER, INC.
Mr. Robert D. Stuva, Executive Director

SHANGRI-LA CORPORATION, Salem
Mr. Robert Talbott, Director

SWEET HOME SCHOOL DISTRICT No. 55
Mr. William Swegar, Director

REVIEW OF RELATED LITERATURE

In the decade between the mid 1940's and mid 1950's a number of states enacted legislation suporting classroom services for the trainable mentally retarded in community based programs. Most often these classes were under the jurisdiction of a local school district. This movement was not without opposition by groups insisting that school programs are not necessarily beneficial to such children (Kirk 1964). The debate over whether the public schools have a responsibility to the TMR or not was best treated by Goldberg and Cruickshank (1958). This question appears now to be an academic one with the public schools accepting the role as the best social agency to work with the TMR. In fact, by 1961 the NARC reported that 39 of the states did suport such programs in the public schools. In July of 1969 the last state, Oregon, joined the rest of the states in this regard.

In this decade of rapid expansion of TMR programs into the public schools, a number of investigations were initiated for the purpose of determining the effects of such organized programs on the overall development of the TMR child. These studies can be generally grouped into two categories, i.e., follow-up studies of TMR children that had spent some time in a classroom program and studies comparing different types of program approaches.

The follow-up studies are represented by the Minnesota Studies as reported by Reynolds and Kiland of a study by Lorenz and Delp (1953), the Saenger Report (1957), and a follow-up study by Tisdall (1960).

These studies had respectable N's, 88 to 520 they were longitudinal insofar as the research covered a span of years as great as 20 years in the case of the Lorenz and Delp study. However, this does not mean that they were longitudinal in the sense that a series of measurements were taken over a 20 year span. The interview-survey design was the mode for gathering the data. As a consequence, much subjectiveness is encountered. Two chief methodological errors in these follow-up reports appear to be: (1) *selection factors* and (2) *no base line data.*

Selection Errors

Many of the TMR were excluded from the programs because they were terminated from school for a variety of reasons, primarily having to do with unacceptable behavior such as having accidents in the area of toileting. In the Delp, Lorenz study, 20% were "screened" out, roughly one in four were "screened" out in the Saenger Study. Another selection factor was age. All the subjects in the above mentioned studies were at least six years of age at the time of entry in the school program, the mean age was nearly 14. These two selection factors, i.e., behavior and age, bias the results in opposite directions. Behavior selection biases the report toward positive results where as by not including three, four, and five year olds the results are biased negatively. These two factors cannot be assumed to hold equal valence. It would be impossible to document what the total effect of selection did have in these studies but it would be safe to suggest that the overall results were biased negatively. In other words results would be somewhat depressed.

In the Oregon report these two selection factors were eliminated. Children were not excluded because of the lack of toilet training, and pre-schoolers were included.

No Base Line Data

We are given a rough idea of where the pupils were at the time of the study but there is no indication of what their functioning levels were when they entered the program.

In the Oregon report, a base line was obtained for each pupil after one month of being entered in the program. Thus, when the final recording of data was taken in the last month of school, a clear comparison could be made.

The studies comparing various types of instructional programs and grouping were far more numerous. They are represented by studies such as the Illinois Studies by Goldstein (1956) a two year study, the Michigan Study reported by Guenther (1956); this was a three-year project to study the effects of grouping heterogeneous by in a rural community, a pre-school group ages 4-8 in an urban area and an adolescent group in an urban area; the New York Study by Johnson and Capabianco (1957); this was a two-year study using a pre- post-test design. They tested ½ day classes, institutional classes, and public day classes; the Texas study by Peck (1960) compared four groups; (1) a public school, (2) a segregated class in the community, (3) an institutional class, and (4) a control remaining at home with no training; the Tennessee study by Hottel (1958) used a matched pair design with one child receiving a public day school program and the other remaining at home with reputedly no training. The last of this series to be reported in this review is the Cain-Levine Study (1963). Cain and Levine reported on the development of social competence of 182 TMR youngsters in communities and institutions. They used a control group in each setting.

Kirk (1964) pp. 67, summarized these studies with the following comments:

> With the exception of the Minnesota follow-up study be Delp and Lorenz (reported by Reynolds and Kiland, 1953) all of the evaluations of the effects of day training programs for TMR children have been short-duration studies. On the whole, investigations have had a difficult time establishing the benefits of

special class training for this group. Many difficulties are encountered in studies of trainable children. First, evaluation instruments, including intelligence tests, have been devised primarily for school children over the age of five. Many of the trainable retarded children have mental levels below the age of five, which tends to restrict standardized instruments for pre- and post-testing to a relatively limited group of tests. Many of the common intelligence tests, such as the Wechsler Intelligence Scale for Children (WISC) are not applicable to this group. Instruments for the measurement of self-care, social adjustment, and economic usefulness have been improvised by the investigators. Second, because of the small numbers of such children in communities (two per thousand school population) it has been difficult to conduct experiments with randomized groups. And third, the heterogeniety of etiology found within this group makes matched pair comparisons questionable.

The Oregon Study is also subject to criticism for its short duration (one school year). However, since continuous evaluation of program effectiveness is a responsibility charged to the program director, in time this criticism will be removed since evaluation will be continued every year *ad infinitum*.

Since Dr. Kirk made his observations above concerning instruments, some remarkable advances have been made. For example, the three scales used in the Oregon Study were developed for the TMR, standardized on the TMR and are thought to be sensitive enough for the very young TMR pupil.

The investigators in the Oregon Study agree with Dr. Kirk's remarks regarding the difficulty in match-pair designing and also in the desirability of using controls. The designers of the Oregon Study made no attempt at matching but did design the study so that each subject served as his own control. The Oregon Study made no attempt to analyze change in intelligence scores as measured by typical psycometrics; rather to the Oregon investigators, it is the change in functional performances that is considered to be the important area to measure change.

STUDIES IN OREGON

Since the summer of 1968 at least 17 short term studies of program effectiveness, having to do with the trainable mentally retarded, have been reported in Oregon. All of these studies utilized the "third party evaluation procedure" designed by Fredericks, Baldwin, and McGee (1970). These studies are reported in a series of reports entitled *Impact of Title VI Programs in the State of Oregon*. The majority of the studies were coordinated by Teaching Research, a Division of Higher Education, with one series coordinated by the University of Oregon (Impact I, 1968; II, 1969; III, 1970; IV, 1971).

These studies cover about every imaginable area of concern in the education of the TMR child, i.e., health, education and physical education; language and physical development; summer work activities; recreation and physical education; precision teaching as a model; work activities directed by senior citizens; speech modification, etc.

In summary it can be stated that the projects were all very brief, varied in settings, models, demographic details, etc., but almost without exception remarkable gains were noted. Each project was evaluated by an outside evaluation team; therefore objectivity was maximized.

This series of short reports support the results reported in this study. Regardless of administrative structure, demographic differences, etc. that the TMR do show substantial positive change when they are involved in a well-organized structured program.

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